UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

November 9, 2021

Carrie Daniels
Authorized Representative (Exponent)
Industrie De Nora S.p.A
Via Bistolfi, 35
20134 Milan, Italy

Subject: PRIA Label Amendment – Salt for use with De Nora's Clor-Tec SD
Product Name: Salt Cartridge for Giselle
EPA Registration Number: 91386-1
Received Date: November 23, 2020
Action Case Number: 00217031

Dear Carie Daniels:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. Pursuant to 40 CFR 156.10(a)(6), you must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Because you have opted to add statements pertaining to emerging viral pathogens to your label as described in the August 19, 2016, Guidance to Registrants: Process For Making Claims Against Emerging Viral Pathogens Not On EPA-Registered Disinfectant Labels ("Guidance"), https://www.epa.gov/sites/production/files/2016-09/documents/emerging_viral_pathogen_program_guidance_final_8_19_16_001_0.pdf, you are subject to the following additional terms of registration:

1. You may make statements pertaining to emerging viral pathogens only through the following communications outlets: technical literature distributed exclusively to health care facilities, physicians, nurses and public health officials, "1-800" consumer information services, social media sites and company websites (non-label related). These statements shall not appear on marketed (final print) product labels.

2. Your statements pertaining to emerging viral pathogens must adhere to the format approved on the Agency-accepted master label.

3. You may make statements pertaining to emerging viral pathogens only upon a disease outbreak that meets all the following criteria:
   a. The causative organism must be a virus that causes an infectious disease that has appeared in a human or animal population in the U.S. for the first time, or that may have existed previously but is rapidly increasing in incidence or geographic range.

      i. For human disease, the outbreak is listed in one of the following Centers for Disease Control (CDC) publications:

         A. CDC Current Outbreak List for "U.S. Based Outbreaks" (www.cdc.gov/outbreaks),
         B. CDC Current Outbreak List for "Outbreaks Affecting International Travelers" with an "Alert" or "Advisory" classification (www.cdc.gov/outbreaks) (also released through the CDC's Health Alert Network (HAN) notification process)
         C. Healthcare-Associated Infections (HAIs) Outbreaks and Patient Notifications page (www.cdc.gov/hai/outbreaks)

      ii. For animal disease, the outbreak is identified as an infectious disease outbreak in animals within the U.S. on the World Organization for Animal Health (OIE) Weekly Disease Information page (www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI).

         A. The CDC or OIE has identified the taxonomy, including the viral family and/or species, of the pathogen and provides notice to the public of the identity of the emerging virus that is responsible for an infectious disease outbreak. Based on the taxonomy of the outbreak pathogen identified by the CDC or OEI, the pathogen's viral subgroup is (small non-enveloped, large non-enveloped, enveloped).

         B. The virus can be transmitted via environmental surfaces (non-vector transmission), and environmental surface disinfection has been recommended by the CDC, OIE or EPA to control the spread of the pathogen.

4. You may begin communicating statements pertaining to emerging viral pathogens only upon CDC or OIE's publication per term 3.a. of an outbreak of an emerging viral pathogen meeting all of the criteria of term 3. You must cease and remove all such non-label communications intended for consumers no later than 24 months after the original publication of the outbreak per term 3.a., unless the Agency issue written guidance to the contrary due to continued public health concerns. The emerging pathogen claim language may remain on the master label.

5. Terms from points 1 through 4 above shall become immediately void and ineffective if registration for use against (Norovirus (Feline Calicivirus) and Poliovirus) is suspended or cancelled or no longer meets the criteria for a disinfectant claim (see EPA Product Performance Test Guideline 810.2200). In addition, terms B.1 through B.4 above shall become immediately void and ineffective upon your receipt of evidence of ineffectiveness against any pathogen in a less-resistant Spaulding category.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. See FIFRA section2(p)(2). If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process, FIFRA section 12(a)(1)(B). Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Assurance.

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Wanda Henson by phone at (202) 566-0650, or via email at henson.wanda@epa.gov.

Sincerely,

Demson Fuller, Product Manager 32
Regulatory Management Branch I
Antimicrobials Division (7510P)
Office of Pesticide Programs

Enclosure

{SMALL CONTAINER LABEL}

Salt Cartridge For Giselle®

ACCEPTED
11/09/2021
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 91386-1

DE NORA NEXT
a De Nora Business Unit

Produces Ready to Use Sanitizer or Disinfectant For hard, non-porous surfaces

Active Ingredient:	
Sodium Chloride*	99.86%
Other Ingredients:	0.14%
Total:	100.00%

***Produces 0.6%, 0.1%, and/or 0.05% available chlorine**

KEEP OUT OF REACH OF CHILDREN

CAUTION

Read complete directions and precautions in the accompanying booklet and manual

EPA Reg. No. 91386-1

EPA Est. No. _____

Net Contents: 2.82 ounces (80 grams)

Mfg. by: Industrie De Nora, S.p.A.
Via Bistolfi 35
20134 Milan, Italy

{ACCOMPANYING BOOKLET}

Salt Cartridge For Giselle®

FIRST AID
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If Inhaled: Move person to fresh air. If person is not breathing call 911 or an ambulance then give artificial respiration, preferably mouth to mouth if possible. Call poison control center or doctor for treatment advice.

HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION: Causes moderate eye irritation. Harmful if swallowed, absorbed through skin, or inhaled. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

DIRECTIONS FOR USE:
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For use only in the Giselle® 1.0 or 2.0 Machine

Use Salt Cartridge for Giselle to produce the following solutions:
- Soleva Sodium Hypochlorite Solution (0.6%), a one-step disinfectant for hard, non-porous surfaces, environmental and non-critical care equipment surfaces. Solution kills bacteria, fungi, viruses and spores **. Cleans and deodorizes.
- Soleva Sodium Hypochlorite Solution (0.1%), One-step sanitizer *** for hard, non-porous surfaces, environmental and food and non-food contact surfaces. Cleans and deodorizes.
- Soleva Sodium Hypochlorite Solution (0.05%), One-step sanitizer *** for hard, non-porous surfaces, environmental and food and non-food contact surfaces. Cleans and deodorizes.

Use solution onsite. Do not sell or distribute the solution to other sites.

SOLEVA 0.6% kills: **Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa ATCC15442, Salmonella enterica ATCC10708, Trichophyton interdigitale ATCC9533, Poliovirus Type1 (Sabin Strain LSc-2ab), Feline Calicivirus F-9 ATCCVR782, and **Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), Clostridium difficile ATCC43598.**

***SOLEVA 0.1% and 0.05% solution has been tested in the presence of 5% organic soil (blood serum) against **Staphylococcus aureus (ATCC 6538)** on food contact surfaces and **Klebsiella pneumoniae (ATCC 4352)** on non-food contact surfaces.

To use the Giselle salt cartridge:

- Dry, Ready-to-Use
- Shake vigorously before use.
- Remove the cap.
- Empty the cartridge inside the Giselle cartridge compartment.
- Insert cartridge inside the Giselle cartridge compartment.
- Gently tap the cartridge bottom, to facilitate salt crystals flow.
- Do not use if the cartridge or the cap is damaged.
- NOTE: The salt cartridge is single use and cannot be refilled.
- Labeling for sodium hypochlorite solutions produced from the Giselle salt cartridge and equipment (Giselle 1.0 and Giselle 2.0) is distributed attached to the bottles for these solutions. Giselle 1.0 produces the 0.6% and 0.1% solutions. Giselle 2.0 produces the 0.6% and 0.05% solutions. Users must follow all the directions for use that are listed in the manual for the Giselle 1.0 or Giselle 2.0 equipment and on all labeling.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage.

Pesticide Storage: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.
Pesticide Disposal: Product or rinsates that cannot be used must be diluted with water before disposal in a sanitary sewer.
Container Handling: Nonrefillable container. Do not reuse or refill this container. Offer for reconditioning if appropriate. Wrap empty container in paper and dispose with trash.

Please refer to the expiration date printed at the bottom of the cartridge.

EMERGING VIRAL PATHOGENS CLAIMS – Hard, non-porous surface

The 0.6% solution qualifies for off-label emerging viral pathogen claims as outlined in the EPA Emerging Viral Pathogen Guidance for Antimicrobial Pesticides when used in accordance with the appropriate use directions.

The 0.6% solution meets the criteria to make claims against certain emerging viral pathogens from the following viral categories: Enveloped viruses, Large Non-enveloped viruses, and Small Non-enveloped viruses. The use directions for which this claim is appropriate is against Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782) and Poliovirus Type 1 (Sabin Strain L Sc-2ab).

The 0.6% solution meets the criteria to make claims against certain emerging viral pathogens from the following viral category[ies]:

- Enveloped Viruses
- Large, Non-enveloped Viruses
- Small, Non-enveloped Viruses

For an emerging viral pathogen that is a/an…	*…follow the directions for use for the following organisms on the label:*
Enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782)
Large, non-enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782)
Small, non-enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782) and Poliovirus Type 1 (Sabin Strain L Sc-2ab)

[Product name] has demonstrated effectiveness against viruses similar to [name of emerging virus] on hard, [porous and/or non-porous surfaces]. Therefore, [product name] can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [pathogen-specific website address] for additional information.

[Name of illness/outbreak] is caused by [name of emerging virus]. [Product name] kills similar viruses and therefore can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [website address] for additional information.

{CONTAINER LABEL}

ABN: Bulk Salt For ClorTec-SD®

Produces Ready to Use Disinfectant and Sanitizer Via Dilution For hard, non-porous surfaces

Active Ingredient:

Sodium Chloride*	99.86%
Other Ingredients:	0.14%
Total:	100.00%

***Produces 0.6% available chlorine**

KEEP OUT OF REACH OF CHILDREN

CAUTION

Read complete directions and precautions in the accompanying booklet and manual

EPA Reg. No. 91386-1

EPA Est. No. _____

Net Contents: 50 lbs (22.7 kilograms)

Mfg. by: Industrie De Nora, S.p.A.
Via Bistolfi 35
20134 Milan, Italy

{ACCOMPANYING BOOKLET}

Bulk Salt For ClorTec-SD®

FIRST AID
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If Inhaled: Move person to fresh air. If person is not breathing call 911 or an ambulance then give artificial respiration, preferably mouth to mouth if possible. Call poison control center or doctor for treatment advice.

HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION: Causes moderate eye irritation. Harmful if swallowed, absorbed through skin, or inhaled. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

DIRECTIONS FOR USE:
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For use only in the ClorTec-SD® Machine

Use Bulk Salt for ClorTec-SD to produce the following solutions:
- ClorTec-SD 0.6%, a one-step disinfectant for hard, non-porous surfaces, environmental and non-critical care equipment surfaces. Solution kills bacteria, fungi, viruses and spores **. Cleans and deodorizes.
- Via dilution, ClorTec-SD Sodium Hypochlorite Solution (0.1%), One-step sanitizer *** for hard, non-porous surfaces, environmental and food and non-food contact surfaces. Cleans and deodorizes.
- Via dilution, ClorTec-SD Sodium Hypochlorite Solution (0.05%), One-step sanitizer *** for hard, non-porous surfaces, environmental and food and non-food contact surfaces. Cleans and deodorizes.

Use solution onsite. Do not sell or distribute the solution to other sites.

ClorTec-SD 0.6% kills: **Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa ATCC15442, Salmonella enterica ATCC10708, Trichophyton interdigitale ATCC9533, Poliovirus Type1 (Sabin Strain LSc-2ab), Feline Calicivirus F-9 ATCCVR782, and **Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), Clostridium difficile ATCC43598.**

***ClorTec-SD 0.1% and 0.05% solution has been tested in the presence of 5% organic soil (blood serum) against **Staphylococcus aureus (ATCC 6538)** on food contact surfaces and **Klebsiella pneumoniae (ATCC 4352)** on non-food contact surfaces.

To use the bulk salt for the ClorTec-SD:

- Dry, Ready-to-Use
- For initial start-up, empty up to five (5) 50 lb (22 kg) bags of salt from the bulk salt bag into the Clor-Tec SD salt compartment. Take note of the fill line and avoid over-filling.
- Salt level should be monitored and topped-off to fill line periodically. Frequency will be determined based on actual use of disinfectant.
- Labeling for sodium hypochlorite solutions produced from the Bulk Salt for Clor-Tec-SD salt and equipment is distributed attached to the bottles for these solutions. Clor-Tec SD produces a 0.6% solution and may be diluted to 0.1% and 0.05% solutions. Users must follow all the directions for use that are listed in the manual for the Clor-Tec SD equipment and on all labeling.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage.

Pesticide Storage: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.
Pesticide Disposal: Product or rinsates that cannot be used must be diluted with water before disposal in a sanitary sewer.
Container Handling: Nonrefillable container. Do not reuse or refill the salt storage bag. Dispose of used bag in trash.

EMERGING VIRAL PATHOGENS CLAIMS – Hard, non-porous surface

The 0.6% solution qualifies for off-label emerging viral pathogen claims as outlined in the EPA Emerging Viral Pathogen Guidance for Antimicrobial Pesticides when used in accordance with the appropriate use directions.

The 0.6% solution meets the criteria to make claims against certain emerging viral pathogens from the following viral categories: Enveloped viruses, Large Non-enveloped viruses, and Small Non-enveloped viruses. The use directions for which this claim is appropriate is against Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782) and Poliovirus Type 1 (Sabin Strain L Sc-2ab).

The 0.6% solution meets the criteria to make claims against certain emerging viral pathogens from the following viral category[ies]:

- Enveloped Viruses
- Large, Non-enveloped Viruses
- Small, Non-enveloped Viruses

For an emerging viral pathogen that is a/an…	*…follow the directions for use for the following organisms on the label:*
Enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782)
Large, non-enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782)
Small, non-enveloped virus	Norovirus (Feline calicivirus) (FCN) (ATCC # VR-782) and Poliovirus Type 1 (Sabin Strain L Sc-2ab)

[Product name] has demonstrated effectiveness against viruses similar to [name of emerging virus] on hard, [porous and/or non-porous surfaces]. Therefore, [product name] can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [pathogen-specific website address] for additional information.

[Name of illness/outbreak] is caused by [name of emerging virus]. [Product name] kills similar viruses and therefore can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [website address] for additional information.

{Attachment 1}
[SOLEVA™]
[ClorTec-SD]

Sodium Hypochlorite Solution (0.6%)

One-step disinfectant for hard, non-porous surfaces
Environmental and non-critical care equipment surfaces
Kills bacteria, fungi, viruses and spores *
Cleans and Deodorizes
***See* label, booklet and manual for [Salt Cartridge for Giselle / Bulk Salt for ClorTec-SD], EPA Reg. No. 91386-1, for more information.**
Use solution onsite. Do not sell or distribute the solution to other sites.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

If in eyes:	• **Hold eye open and rinse slowly and gently with water for 15-20 minutes.** • **Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.** • **Call a poison control center or doctor for treatment advice.**
If on skin:	• **Take off contaminated clothing.** • **Rinse skin immediately with plenty of water for 15-20 minutes.** • **Call a poison control center or doctor for treatment advice.**
If swallowed:	• **Call a poison control center or doctor immediately for treatment advice.** • **Have person sip a glass of water if able to swallow.** • **Do not induce vomiting unless told to do so by a poison control center or doctor.** • **Do not give anything to an unconscious person.**
Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency calls.	

Net Contents: [13.5 ounces (0.4 liter)] or [xx oz (xx liter(s)]

DIRECTIONS FOR USE:

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.

{BEGIN OPTIONAL DISPENSING INSTRUCTIONS

{OPTION 1 - Soleva™ produced by the Giselle machine}:

- Include time (day/hour) of SOLEVA 0.6% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 24 hours (0.6% Solution) from production and kept in sealed bottles. Do not use 24 hours after production time. Refer to the label indicating time of production.

{OPTION 2: ClorTec-SD produced by the ClorTec-SD machine}:

- Prior to dispensing solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- Include time (day/hour) when ClorTec-SD 0.6% solution is dispensed on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 24 hours (0.6% Solution) from dispensing and kept in sealed bottles. Do not use 24 hours after dispensing the product from the tank. Refer to the label indicating time when dispensed.

END OPTIONAL DISPENSING INSTRUCTIONS}

- [SOLEVA 0.6%] [ClorTec-SD 0.6%] solution can be used as a disinfectant on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the manual.)
- **To kill fungi or *Clostridium difficile* spores, pre-clean surfaces according to the instructions below prior to spraying [SOLEVA 0.6%] [ClorTec-SD 0.6%] solution.**
- Spray [SOLEVA 0.6%] [ClorTec-SD 0.6%] solution directly onto the surface to be disinfected. Hold sprayer 6 to 8 inches from the surface. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 10 minutes. After 10 minutes, rinse with potable water. Thoroughly rinse surfaces when steel or coated metals are treated.

*[SOLEVA 0.6%] [ClorTec-SD 0.6%] kills: **Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa ATCC15442, Salmonella enterica ATCC10708, Trichophyton interdigitale ATCC9533, Poliovirus Type1**

(Sabin Strain LSc-2ab), Feline Calicivirus F-9 ATCCVR782, and Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), Clostridium difficile ATCC43598.

Special Instructions for Cleaning and Decontamination Against HIV and HCV of Surfaces/ Objects Soiled with Blood/Bodily Fluids:
Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Blood and other body fluids must be thoroughly cleaned from surfaces and objects. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.
Infectious Materials Disposal: Blood and other body fluids should be autoclaved and disposed of according to Federal, State and local regulations for infectious waste disposal.

Special Pre-Cleaning Instructions Prior to Disinfection for Fungi and *Clostridium difficile* spores -- Cleaning Instructions Prior to Disinfection of Heavily Soiled Surfaces or for *Clostridium difficile* spores:
Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before disinfection by application with a clean cloth, mop, and/or sponge saturated with the disinfectant product. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.
Infectious Materials Disposal: Materials used in the cleaning process that may contain feces/wastes are to be disposed of immediately in accordance with local regulations for infectious materials disposal.

This product is not to be used as a terminal sterilant/high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, either into or in contact with the bloodstream or normally sterile areas of the body, or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to preclean or decontaminate critical or semi-critical medical devices prior to sterilization or high level disinfection.

PRECAUTIONARY STATEMENTS:

HUMANS AND DOMESTIC ANIMALS: Avoid breathing spray mist as vapors may irritate. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using

the toilet. Remove and wash contaminated clothing before reuse. Wear cotton, rubber, PVC, neoprene, Viton or latex clothing and gloves when using.

PHYSICAL AND CHEMICAL HAZARDS: Do not mix SOLEVA solution with other products as dangerous gases can be produced. Do not mix with acid. Do not mix with ammonia. Refer to the Use Manual for additional information concerning toxicity, first aid, use directions, storage and disposal.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment.

Pesticide Storage: Store away from children. Store this product upright in a cool, dry area, away from direct sunlight and heat to avoid deterioration.

Pesticide Disposal: Product that cannot be used should be diluted with water before disposal in a sanitary sewer.

Container Disposal: Nonrefillable container. Do not reuse this container to hold materials other than 0.6% sodium hypochlorite solution produced by the [Giselle® / Clor-Tec SD] system.

{Attachment 2}
[SOLEVA™]
[ClorTec-SD]

a De Nora Business Unit

Sodium Hypochlorite Solution (0.1%)

One-step sanitizer for hard, non-porous surfaces
Environmental and food and non-food contact surfaces
Cleans and deodorizes
***See* label, booklet and manual for [Salt Cartridge for Giselle / Bulk Salt for ClorTec-SD], EPA Reg. No. 91386-1, for more information.**
Use solution onsite. Do not sell or distribute the solution to other sites.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

If in eyes:	• **Hold eye open and rinse slowly and gently with water for 15-20 minutes.** • **Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.** • **Call a poison control center or doctor for treatment advice.**
If on skin:	• **Take off contaminated clothing.** • **Rinse skin immediately with plenty of water for 15-20 minutes.** • **Call a poison control center or doctor for treatment advice.**
If swallowed:	• **Call a poison control center or doctor immediately for treatment advice.** • **Have person sip a glass of water if able to swallow.** • **Do not induce vomiting unless told to do so by a poison control center or doctor.** • **Do not give anything to an unconscious person.**
Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency calls	

Net Contents: [16.9 ounces (0.5 liter)] or [xx oz (xx liter(s)]

DIRECTIONS FOR USE:

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

{BEGIN OPTIONAL DISPENSING INSTRUCTIONS

{OPTION 1 - Soleva™ produced by the Giselle machine}

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.1% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.1% Solution) from production and kept in sealed bottles. Do not use 48 hours after production time. Refer to the label indicating time of production.

{OPTION 2: ClorTec-SD produced by the ClorTec-SD machine}

- Prior to dispensing and diluting the solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- Dilute generated product with 5 parts water to 1 part ClorTec-SD solution. For example: Mix 5 gallons of water with 1 gallon of ClorTec-SD solution. Drinking quality tap water is acceptable. If not available, bottled water or other clean, filtered source is acceptable. Care should be taken to use water that has little to no chlorine demand.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) when ClorTec-SD 0.1% solution is dispensed and diluted on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.1% Solution) from dispensing and diluting and kept in sealed bottles. Do not use 48 hours after dispensing the product from the tank and diluting it. Refer to the label indicating time when dispensed.

END OPTIONAL DISPENSING INSTRUCTIONS}

- [SOLEVA 0.1%] [ClorTec-SD 0.1%] solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the manual.)
- Pre-clean visibly soiled surfaces according to the instructions below.
- Spray [SOLEVA 0.1%] [ClorTec-SD 0.1%] solution directly onto the surface to be sanitized. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 2 minutes. After 2 minutes, rinse with potable water.

- **[SOLEVA 0.1%] [ClorTec-SD 0.1%] solution has been tested in the presence of 5% organic soil (blood serum) against Staphylococcus aureus (ATCC 6538) on food contact surfaces and Klebsiella pneumoniae (ATCC 4352) on non-food contact surfaces.**

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:
Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

PRECAUTIONARY STATEMENTS:

HUMANS AND DOMESTIC ANIMALS: Avoid breathing spray mist as vapors may irritate. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse. Wear cotton, rubber, PVC, neoprene, Viton, or latex clothing and gloves when using.

PHYSICAL AND CHEMICAL HAZARDS: Do not mix SOLEVA solution with other products as dangerous gases can be produced. Do not mix with acid. Do not mix with ammonia.

Refer to the Use Manual for additional information concerning toxicity, first aid, use directions, storage and disposal.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment.

Pesticide Storage: Store away from children. Store this product upright in a cool, dry area, away from direct sunlight and heat to avoid deterioration.

Pesticide Disposal: Product that cannot be used should be diluted with water before disposal in a sanitary sewer.

Container Disposal: Nonrefillable container. Do not reuse this container to hold materials other than 0.1% sodium hypochlorite solution produced by Giselle® system.

{Attachment 3}
[SOLEVA™]
[ClorTec-SD]

DE NORA NEXT
a De Nora Business Unit

Sodium Hypochlorite Solution (0.05%)

One-step sanitizer for hard, non-porous surfaces
Environmental and food and non-food contact surfaces
Cleans and deodorizes
***See* label, booklet and manual for [Salt Cartridge for Giselle / Bulk Salt for ClorTec-SD], EPA Reg. No. 91386-1, for more information.**
Use solution onsite. Do not sell or distribute the solution to other sites.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

If in eyes:	• **Hold eye open and rinse slowly and gently with water for 15-20 minutes.** • **Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.** • **Call a poison control center or doctor for treatment advice.**
If on skin:	• **Take off contaminated clothing.** • **Rinse skin immediately with plenty of water for 15-20 minutes.** • **Call a poison control center or doctor for treatment advice.**
If swallowed:	• **Call a poison control center or doctor immediately for treatment advice.** • **Have person sip a glass of water if able to swallow.** • **Do not induce vomiting unless told to do so by a poison control center or doctor.** • **Do not give anything to an unconscious person.**
Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. You may also contact CHEMTREC at 1-800-424-9300 or emergency calls.	

Net Contents: [16.9 ounces (0.5 liter)] or [xx oz (xx liter(s)]

DIRECTIONS FOR USE:

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

{BEGIN OPTIONAL DISPENSING INSTRUCTIONS

{OPTION 1: Soleva™ produced by the Giselle machine}

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.05% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.05% Solution) from production and kept in sealed bottles. Do not use 48 hours after production time. Refer to the label indicating time of production.

{OPTION 2: ClorTec-SD produced by the ClorTec-SD machine}

- Prior to dispensing and diluting the solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- Dilute generated product with 10 parts water to 1 part ClorTec-SD solution. For example: Mix 10 gallons of water with 1 gallon of ClorTec-SD solution. Drinking quality tap water is acceptable. If not available, bottled water or other clean, filtered source is acceptable. Care should be taken to use water that has little to no chlorine demand.]
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) when ClorTec-SD 0.05% solution is dispensed and diluted on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.05% Solution) from dispensing and diluting and kept in sealed bottles. Do not use 48 hours after dispensing the product from the tank and diluting it. Refer to the label indicating time when dispensed.

END OPTIONAL DISPENSING INSTRUCTIONS}

- [SOLEVA 0.05%] [ClorTec-SD 0.05%] solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the manual.)
- Pre-clean visibly soiled surfaces according to the instructions below.
- Spray [SOLEVA 0.05%] [ClorTec-SD 0.05%] solution directly onto the surface to be sanitized. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 2 minutes. After 2 minutes, rinse with potable water.

- **[SOLEVA 0.05%] [ClorTec-SD 0.05%] solution has been tested in the presence of 5% organic soil (blood serum) against Staphylococcus aureus (ATCC 6538) on food contact surfaces and Klebsiella pneumoniae (ATCC 4352) on non-food contact surfaces.**

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:
Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

PRECAUTIONARY STATEMENTS:

HUMANS AND DOMESTIC ANIMALS: Avoid breathing spray mist as vapors may irritate. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse. Wear cotton, rubber, PVC, neoprene, Viton, or latex clothing and gloves when using.

PHYSICAL AND CHEMICAL HAZARDS: Do not mix SOLEVA solution with other products as dangerous gases can be produced. Do not mix with acid. Do not mix with ammonia.

Refer to the Use Manual for additional information concerning toxicity, first aid, use directions, storage and disposal.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment.

Pesticide Storage: Store away from children. Store this product upright in a cool, dry area, away from direct sunlight and heat to avoid deterioration.

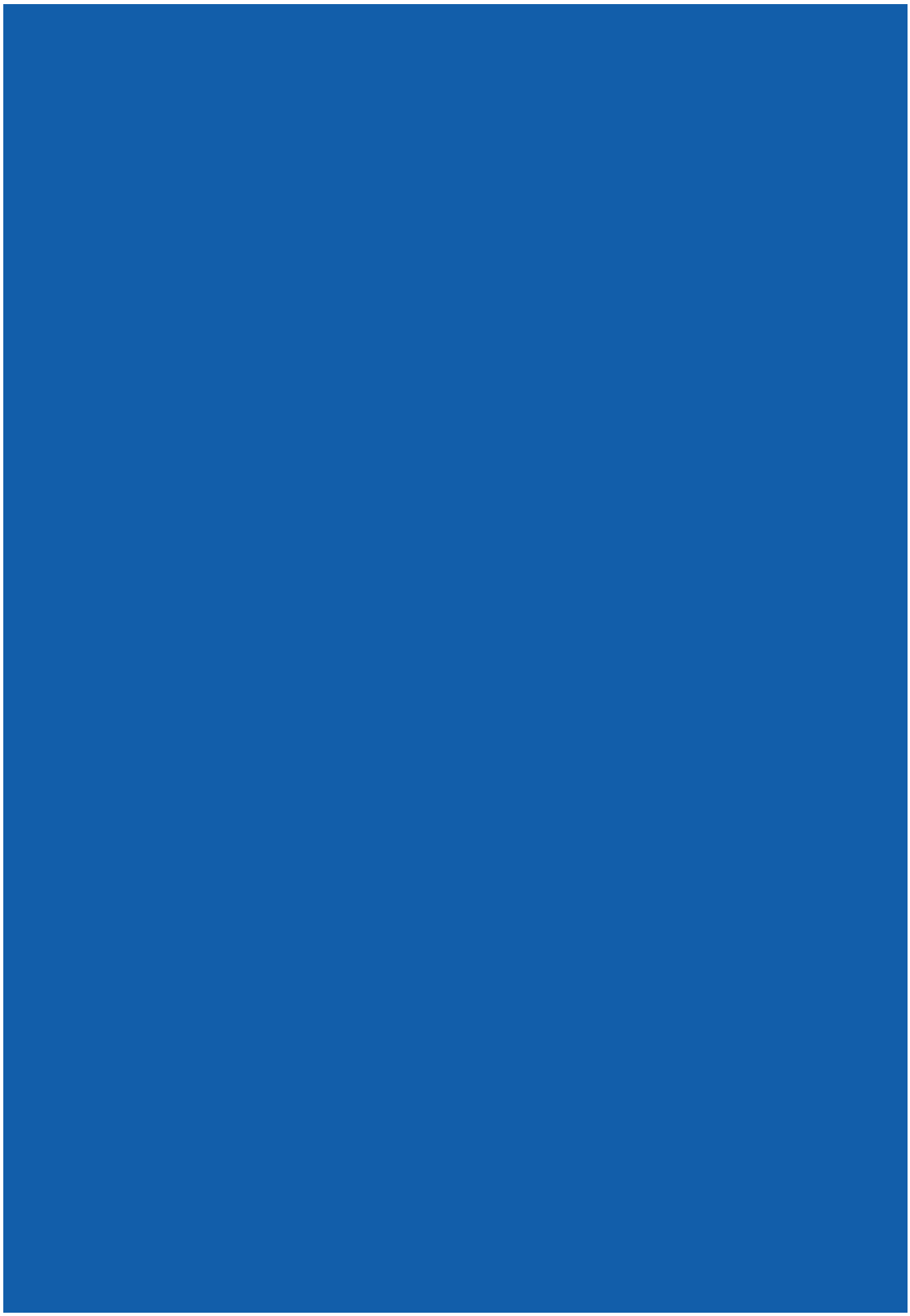
Pesticide Disposal: Product that cannot be used should be diluted with water before disposal in a sanitary sewer.

Container Disposal: Nonrefillable container. Do not reuse this container to hold materials other than 0.05% sodium hypochlorite solution produced by [Giselle® / ClorTec-SD] system.

Oiselle®

1.0 User and installation manual

DE NORA NEXT a De Nora Business Unit



For best performance, Industrie De Nora S.p.A. recommends reading the manual thoroughly before installing and using the equipment. Store this manual in an easy accessible location so that operators can consult it at any time.

Product: **Giselle® 1.0**
Giselle 1.0 produces the 0.6% and 0.1% solutions.
Users of Giselle® 1.0 to produce the 0.6% and the 0.1% solutions cannot sell the solution or distribute it to other facilities.

Manufactured by: **Industrie De Nora S.p.A. - Via Bistolfi 35, 20134 Milano, Italy**

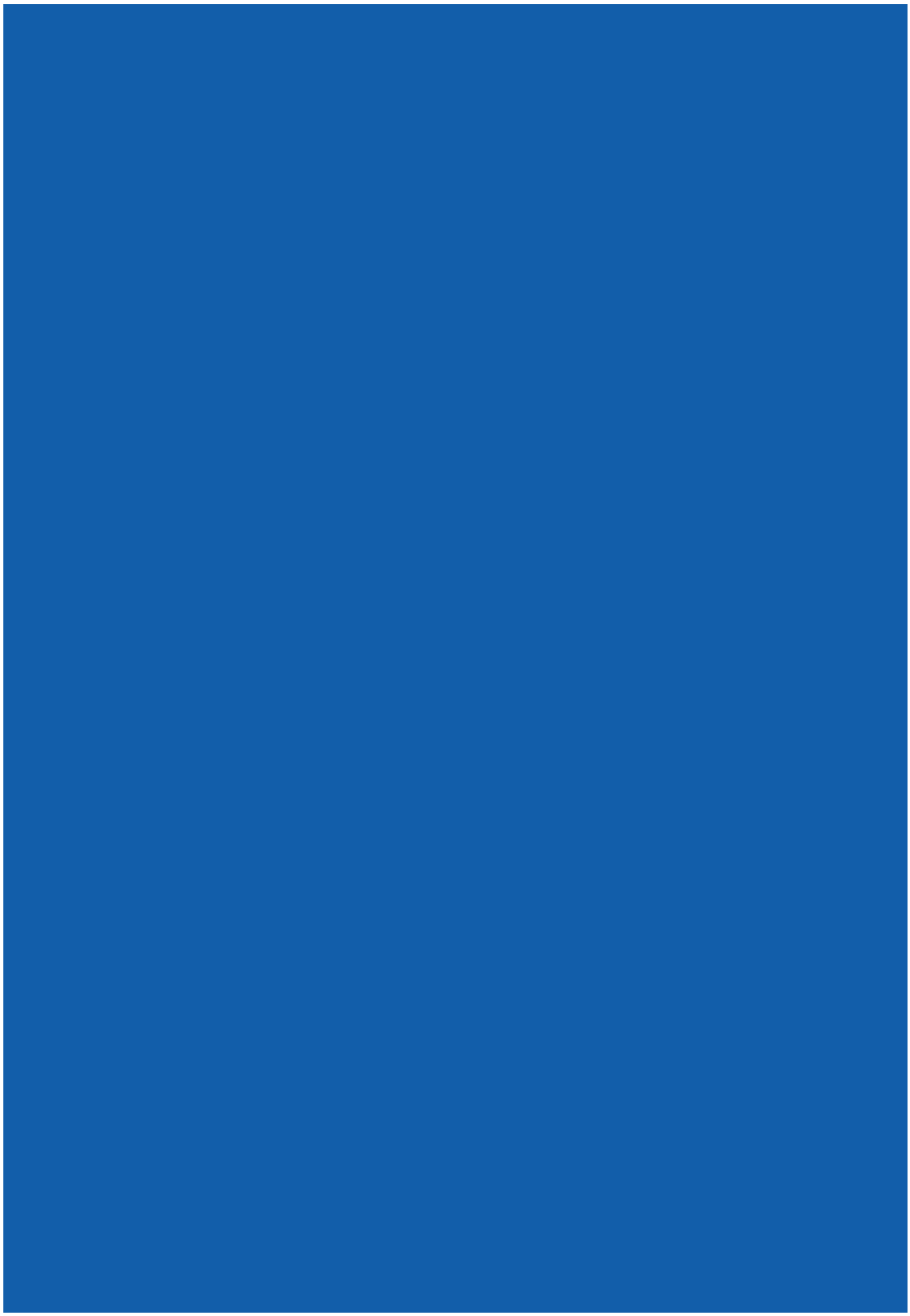
Installed by: .....

Date of installation: .....

Location of installation: .....

For technical assistance, please contact:
Industrie De Nora S.p.A.
Via Bistolfi 35, 20134 Milano, Italy

Tel: +39 (340) 9912737
Fax:+39 02 21292831
Email:info@denoranext.com



Contents

Using the manual

Thank you for purchasing the Giselle® 1.0 unit and its accessories.

This manual aims to provide the following information to the operator:

- Safety measures
- Installation instructions
- Operating instructions
- Routine maintenance instructions

This manual must be stored in an easily accessible location.

Read carefully the manual before operating the device.

Observe all the relevant warnings and precautions during the installation, operation and maintenance of Giselle® 1.0 and its accessories.

The operator is responsible for ensuring that Giselle® 1.0 and its accessories are implemented in accordance with the instructions of this manual. If the device is used in ways other than those indicated in this manual, Industrie De Nora S.p.A will not provide any warranty and it will not take responsibility for any damage to people or other objects.

In case of malfunctions requiring advanced technical interventions, please contact:
Industrie De Nora S.p.A., Via Bistolfi 35, 20134 Milano, Italy - Tel: +39 (340) 9912737 - Email: info@denoranext.com

a De Nora Business Unit

General precautions and warnings

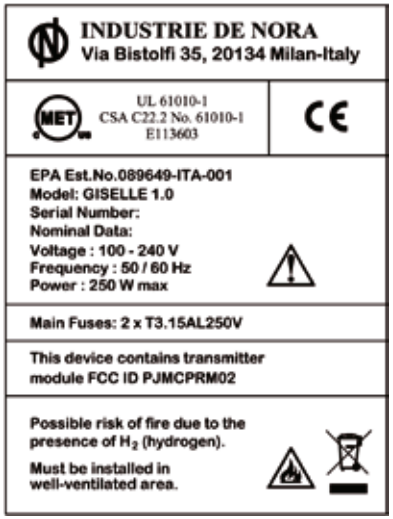
2.1 Declaration of conformity

Industrie De Nora S.p.A. declares that this product conforms to the following directives:

- 2006/95/CE (LDV)
- 2004/108/CE (EMC)

European standards:
- EN 61010-1: 2001
- EN 61326-1: 2006
- ETSI EN 301489-1 V1.8.1: 2008
- ETSI EN 301489-3 V1.4.1: 2002

Standards for USA and Canada:
- FCC Part 15 subpart B
- EPA regulations - 40 CFR, Part 152.500
- EPA Est. No. 089649-ITA-001



2.2 PPE (Personal Protection Equipment)

Operating Giselle® 1.0 involves handling various chemical substances: therefore, prior to using the device, it is advisable to carefully read the manual, labels and safety sheets.
It is advisable to use protective glasses and gloves.

2.3 Safety measures

In this manual, the safety measures are subdivided into WARNINGS and PRECAUTIONS.

WARNINGS
If these instructions are not observed, the device may damage objects, cause injury to persons or loss of life.

PRECAUTIONS
If these instructions are not observed, the device may cause light or serious damage to objects, or personal injury.
The following WARNINGS AND PRECAUTIONS must be observed.

2.4 General safety

WARNINGS

- In order to prevent fires, explosions or injury, do not operate the device near flammable, hazardous or corrosive gases. Do not attempt to dismantle, repair or modify the device on your own. Intervening incorrectly may cause electric discharges and fires.
- Do not place any object on top of the device.

- Do not introduce objects inside the device or in the tank.
- Do not obstruct the vent on the upper section of the device's tank. This may cause the pressure inside the tank to increase sharply which may result in leakages, liquid jets and explosions.
- Clean periodically the ventilation slits, on the top and on both sides of the machine, in order to avoid modifications or reduction of the machine ventilation.
- Persons without adequate training should not attempt to install or use the device.
- Only personnel authorized by Industrie S.p.A De Nora can repair and mantain Giselle 1.0.
- The solution produced by Giselle® 1.0 (sodium hypochlorite) can be a sanitizer or a disinfectant —NOT DRINKING WATER—and therefore must NOT be swallowed.

PRECAUTIONS

- Do not place any containers with water or other liquids on top of the device. Water may accidentally leak into the device and jeopardise the electrical insulation, causing electric shocks.
- Only use Giselle® 1.0 with spray bottles and cartridges provided by Industrie De Nora S.p.A..

2.5 Electrical safety

WARNINGS

- Verify conformity to all electrical regulations.
  Failure to observe such regulations shall void the Industrie De Nora warranty.
- The device must be properly earthed. Always use an electrical system having an earth connection.
- Do not remove or cut parts of the plug for earthing the power socket.
- Do not deactivate or tamper with the electrical interlocks or lockout mechanisms.
- Connect the device only to a 100-240V ~ 50/60Hz 250 W max. electrical source.
- Do not attempt to repair, replace or modify the power cord.
- Do not pull the cord.

- All the electric cables and connections in use must be free of defects or damages (cuts, abrasions or other elements that may be risk of electrocution).
- If any water sources are nearby, take the necessary precautions to protect the electrical components.

PRECAUTIONS

- If the Industrie De Nora S.p.A. device is subjected to voltage variations exceeding ± 10% or blackouts, electrical storms, incorrect earthing, or harmonic effects, Industrie De Nora recommends installing an uninterruptible power supply (UPS), or a surge arrester in order to protect sensitive electrical components.
- Do not modify the cable connectors as it is a potential risk.
- If an extension is needed, only use certified components.

2.6 Installation site

WARNINGS

- Do not install the machine in a room classified at risk of explosion for flammable gas/vapour/powders.
- Assess the adequacy of the place where to install the machine on the basis of the quantity of emitted hydrogen (0.19 l/min during production of the solution).
- Verify that the facility and installation where Giselle® 1.0 is installed conform to the relevant safety regulations.
- Ensure that the equipment is installed in a safe location to prevent uncontrolled access, tampering with the devices or water supply difficulties.
- Install the device in a well ventilated and clean room. NFPA497 requires at least 6 air changes per hour.
- Install the device far away (at least 1m) from sources of heat, flames and sparks or other possible sources of ignition.
- Place the device in locations where there are no patients with life-sustaining devices.
- Keep the device in places where there are only devices complying with CEI EN 61326.1 for electromagnetic compatibility.

- Do not position the device near walls or ther objects that could limit the ventilation around the machine. Position it at least 1m far.
- Clean the room in order to avoid presence of dirty into the ventilation slits of the machine.

PRECAUTIONS

- Transport and handle with care. The device weighs 14 kg. If necessary, use appropriate mechanical aids (for example, manual pallet jacks or forklift trucks). Use suitable personal protection equipment.
- Giselle® 1.0 is designed to operate in a fixed and stable position.

FURTHER INFORMATION:

During normal operation of Giselle® 1.0

- The device emits low level noise.
- The external surfaces are at ambient temperature or slightly higher. There is no risk of burns.
- The device does not emit any significant vibrations.

2.7 Treatment of chemical substances

Information on the raw materials

The basic elements intervening in the production process of Giselle® 1.0 include:

- Potable tap water
- Electrical power
- Salt (sodium chloride 99.86%), provided as "Salt Cartridge for Giselle®"
- Citric Acid Monohydrate (Solid-100%), provided as "Maintenance Cartridge for Giselle®"

This cartridge cannot be used to produce a solution that will treat surfaces against pest.

1. Salt (sodium chloride 99.86%)

Sodium chloride is supplied by Industrie De Nora S.p.A. in a high-density polyethylene sealed cartridge.
The substance is classified as NON HAZARDOUS pursuant to OHSA criteria.
In case of need, consult the safety sheet.

PRECAUTIONS

Only use original salt cartridges supplied by Industrie De Nora S.p.A. and carrying the De Nora Next logo.
The salt cartridge are single use and cannot be refilled.

2. Citric Acid Monohydrate (Solid-100%)

The citric acid solution is supplied by Industrie De Nora S.p.A. in a high-density polyethylene sealed cartridge.
The substance is classified as EYES IRRITANT H319 substance pursuant to OHSA criteria.

Causes serious eyes irritation

WARNINGS

- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on the label and safety sheet.

PRECAUTIONS

- Only use original citric acid cartridges supplied by Industrie De Nora S.p.A..

2.8 The Giselle® 1.0 solution (Soleva™)

Giselle® 1.0 produces Soleva™, a sodium hypochlorite solution in water, with two different concentrations:

Type of Soleva™ Solution	Concentration of active ingredients	Other Ingredients	pH
Low concentration	0.1% Free Available Chlorine	1% Sodium Chloride - 98.9% Water	9
High concentration	0.6% Free Available Chlorine	2% Sodium Chloride - 97.4% Water	9

The preparation is classified as NON HAZARDOUS pursuant to OHSA criteria.

PRECAUTIONS

- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on safety sheet.

2.9 Waste water of Giselle® 1.0

The production of the Soleva™ solution and the cleaning and maintenance cycles (if any) produce waste water that is collected in a polyethylene tank connected to the machine. The tank is identified by the orange "Waste Water" label.
The waste water's composition may vary depending on the number and type of Soleva™ solutions produced and on the cleaning cycles effected.

The solution may contain citric acid, sodium hypochlorite, sodium chloride and water.

WARNINGS
- Read the label before use.
- Handle, store and dispose as per local regulation.

2.10 Respect for the environment

Packaging

The packaging of Giselle® 1.0 is made up of totally recyclable materials which must be disposed of in conformity to the local regulations.

- Cardboard
- Expanded PE (polyethylene)

Giselle® 1.0

Dispose of in conformity to the local regulations.

Plastic

- ABS (acrylonitrile butadiene styrene polymer)
- PE (polyethylene)
- PVC (polyvinyl chloride)
- PTFE (polytetrafluoroethylene)

Metal

- Titanium Grade 1
- RuOx (ruthenium oxide)
- IrOx (iridium oxide)
- 316L stainless steel
- Copper
- Iron
- Zinc

Rubber

- EPDM (ethylene propylene diene monomer)

Electronic materials

- Components

Accessories

Dispose of in conformity to the local regulations.

Salt cartridge

- HD PE (high-density polyethylene) cartridge
- Contents: 80g sodium chloride
- Paper label with antenna for RFID reading

Maintenance cartridge

- HD PE cartridge (high-density polyethylene)
- Contents: 25g of citric acid monohydrate (solid-100%)
- Paper label with antenna for RFID reading

Bottles for Soleva™ solutions

- HD PE (high-density polyethylene) bottles
- ABS (acrylonitrile butadiene styrene polymer) connector
- PE (polyethylene) labels

Tanks

- HD PE (high-density polyethylene) tanks
- PE (polyethylene) stoppers
- HD PE (high-density polyethylene) caps
- PE (polyethylene) labels

Tubes

- PVC (polyvinyl chloride) tubes
- PE (polyethylene) tubes
- PVDF (polyvinylidene fluoride), steel, nylon fittings

Standard cart

- Anodised aluminium alloy cart
- Rubber wheels

Premium cart

- Anodised aluminium alloy cart (equipped with doors and lock)
- Rubber wheels

Fixing kit

- Non alloy steel, PE (polyethylene), PA 6 (polyamide 6)
- Nylon nuts

Printer (s'print model supplied by Custom)

- ABS (acrylonitrile butadiene styrene polymer)
- Electronic components

Description

Giselle® 1.0 ™ is an electronic device for the on-site production of Soleva™, a sodium hypochlorite solution generated in two different concentrations (0.1 and 0.6% free available chlorine)

3.1 Process

The operating process leading to the production of Soleva™ can be summarised as follows:
$NaCl + H_2O + 2e^- \rightarrow NaOCl + H_2$

Salt + Water + Electricity $\rightarrow$ Soleva™ + Hydrogen
At the start of the process, the salt (sodium chloride - NaCl) is dissolved in water.
The salt is entirely broken down into sodium Na+ and Chlorine Cl- ions in solution:
$NaCl \rightarrow Na^+ + Cl^-$

This saline solution is transferred to the electrolysis cell where the following reaction occurs:
ANODE: $2Cl^- \rightarrow Cl_2 + 2e^-$
CATHODE: $2H_2O + 2e^- \rightarrow 2OH^- + H_2\uparrow$

Subsequently, the chlorine (Cl2) and hydroxide ion (OH-)
react to form sodium hypochlorite:
$Cl_2 + OH^- \rightarrow OCl^- + Cl^- + H^+$
The sodium hypochlorite remains in solution and can be used as a sanitizer or disinfectant depending on its concentration.

The Giselle® 1.0 device is equipped with an appropriate tank for preparing the salt solution. This solution is then transferred to the electrolysis cell where the above-mentioned electrochemical reaction takes place.
The necessary energy supplied to the system is electronically managed and controlled. The electrolysis cell is equipped with electrodes manufactured with catalytic coats exclusively supplied by Industrie De Nora S.p.A.. At the end of the process, after a few minutes of electrochemical reaction, the Soleva™ solution is transferred from the cell to the spray bottle and is ready for use.

The hydrogen, generated inside the cell through a cathodic reaction, rises to the top and exits the cell and system thanks to the fan and appropriate aeration vent.

The level switches, connected to the insertion fork, allow for measuring the correct amount of water and solution required for the process.

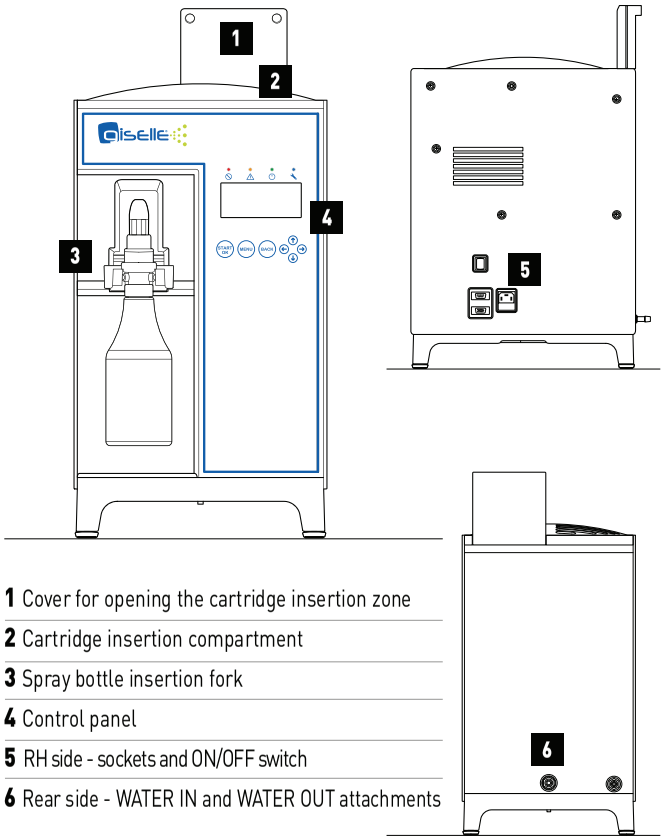
All the functions of the components and the entire process are electronically controlled by a proprietary firmware.

The RFId (Radio Frequency Identification) technology is used to guarantee maximum quality, reliability of Giselle® 1.0 and safety avoiding uncontrollable production of Soleva™.

3.2 Giselle® 1.0 technical data:

• Model	Giselle® 1.0
• Material	ABS,PTFE, PE, PVC, EPDM, Metals
• Production capacity	Up to 0.5 l of solution for each production cycle
• Power connection	100-240V~ 50/60Hz 250 W max.
• RFId Transmitter module RFId	FCC ID PJMCPRM02
• Feed water	Temperature from 10 to 29 °C - Atmospheric pressure
• Ambient temperature	Min 10°C, max 40°C
• Ambient relative humidity	Max 95% (without condensate build-up)
• Altitude	0-2000 m above sea level
• Water consumption	Roughly 10 l per salt cartridge
• Dimensions	310 mm x 420 mm x 550 mm (WxDxH)
• Weight	14 kg
• Protection rating	1
• Pollution degree	2
• Installation category	2
• Surfaces subject to heat	None
• Vibrations	Non appreciable
• Effluents/emissions	Hydrogen gas (diluted: 0.19l/min) during the solution production. Water with variable content of: sodium chloride, sodium hypochlorite, citric acid.
• Warranty	1 year
• Mains Fuses	2 x T3.15AL250V

The device is designed to operate in a stable vertical position. Indoor use only.
Voltage fluctuations shall not exceed +/- 10% of the nominal supply voltage.



1 Cover for opening the cartridge insertion zone

2 Cartridge insertion compartment

3 Spray bottle insertion fork

4 Control panel

5 RH side - sockets and ON/OFF switch

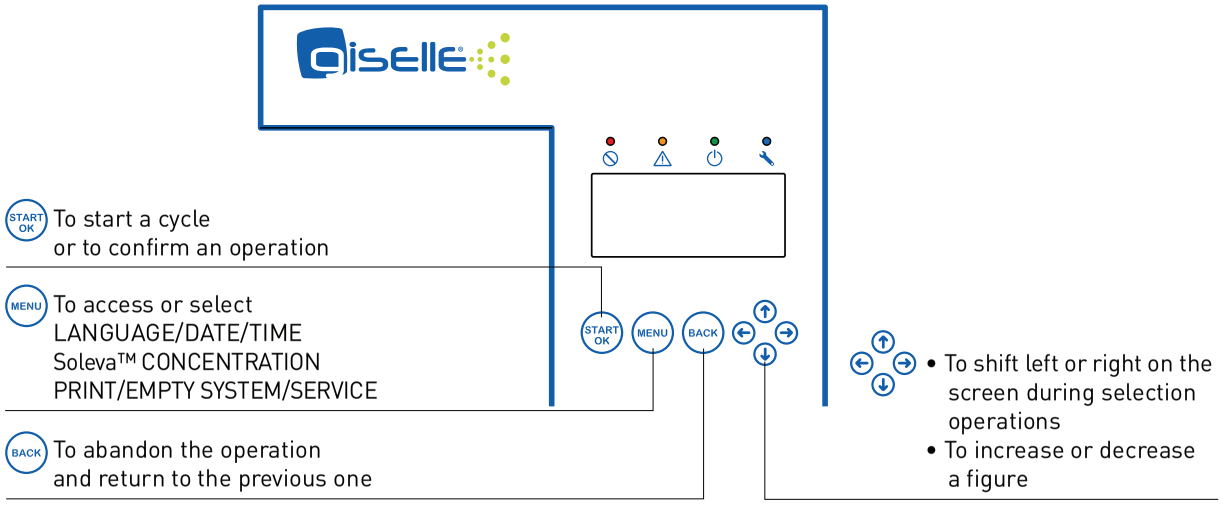
6 Rear side - WATER IN and WATER OUT attachments

Risk of fire: consult the section **Precautions and warnings** (Section **2.0**)

Do not dispose of this product as solid urban waste but bring to to appropriate waste collection facilities.

Important operating and maintenance (servicing) instructions in the literature accompanying the product.
Read carefully the manual.

Front panel



Indicator Leds

			
ERRORS: see Section **7.0** of the manual	**SIGNALS:** see Section **7.0** of the manual	**SYSTEM READY FOR OPERATION**	**MAINTENANCE:** see Section **6.0** of the manual

- Yellow + Blue Request for maintenance: see Section **6.0** of the manual
- Green + Blue Configuration: see Section **4.0** of the manual
- Green + Yellow System operating: do not touch

3.3 Soleva™

Soleva is a sodium hypochlorite solution produced by Giselle® 1.0 directly in the bottle equipped with spray nozzle, with which it can be applied.
The bottles supplied have 2 different colours and are used depending on the desired concentration of Soleva™.

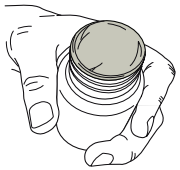
Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.1% Free Available Chlorine	BLUE	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

Low Concentration

High Concentration

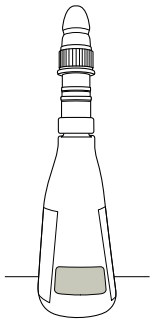
• Soleva Sodium Hypochlorite Solution (0.6%) is a one-step disinfectant for hard, non-porous surfaces, environmental and non-critical care equipment surfaces. Solution kills bacteria, fungi, viruses and spores. Cleans and deodorizes.
• Soleva Sodium Hypochlorite Solution (0.1%) is a One-step sanitizer for hard, non-porous surfaces, environmental and food contact surfaces. Cleans and deodorizes.
Soleva has been tested in agreement with OCSPP 810.2300 and OCSPP 810.2200 Guidelines.

3.4 Accessories



Salt cartridge
Size: 40 mm Ø x 75 mm Weight: 100 g
High-density polyethylene cartridge, provided with sealing gasket.
Contains the proper amount and type of salt for correctly operating Giselle® 1.0 (80 g).
Each cartridge comes with an RFID label so that it can be identified by Giselle® 1.0.

Maintenance cartridge
Size: 40 mm Ø x 75 mm Weight: 45 g
High-density polyethylene cartridge, provided with sealing gasket.
Contains the proper amount (25 g) and type of citric acid for performing cleaning and maintenance of Giselle® 1.0.
Each cartridge comes with an RFID label so that it can be identified by Giselle® 1.0.

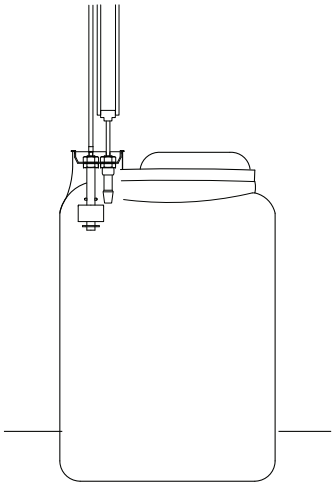


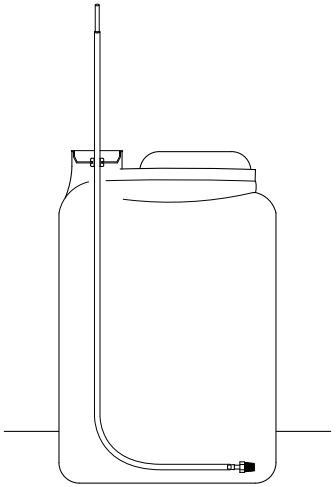
Soleva™ spray bottles
Blue bottle: Size: 80 x 96 x 290 mm (WxDxH) Weight (empty): 120 g
Green bottle: Size: 64 x 95 x 300 mm (WxDxH) Weight (empty): 120 g
High-density polyethylene bottles equipped with machine connector and nebuliser for producing and applying Soleva™ solutions. The bottles come in different sizes and include different colour labels and connectors: blue for solutions with 0.1% free available chlorine and green for 0.6% chlorine solutions. The labels applied to the bottles include the solution's instructions for use. The label with the relevant date and time of production of the solution (see Section 5.3) can be applied in the appropriate space.

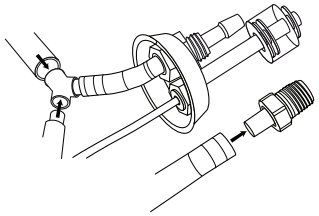
Tanks

Ext. dimensions 200 x 210 x 325 mm (WxDxH) Weight (empty): 450 g Capacity: 11l
High-density polyethylene tanks for tap water and waste water.
The tanks are equipped with pierced stoppers for connection to Giselle® 1.0.
The waste water tank is identified by the orange label with the wording “WASTE WATER TANK”.
The tap water tank is identified by the blue label with the wording “TAP WATER TANK”.

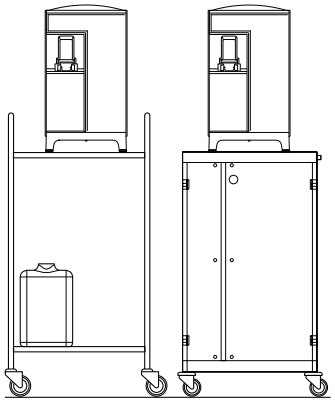
Connection tubes







Tubes and fittings for tap water and waste water.

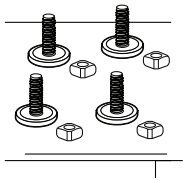


Standard - optional - cart
Ext. dimensions 540 x 540 x 1085 mm (WxDxH)
Load-bearing capacity per shelf: 20kg
Dismantable anodised aluminium cart equipped with 2 shelves, 4 non-marking grey rubber caster wheels (diameter 75 mm) and 2 independent brakes.

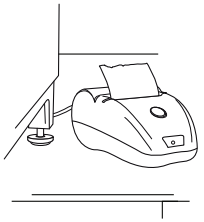
The cart is designed to house and fix Giselle® 1.0 (top shelf) and 2 tap and waste water tanks (lower shelf), so that the equipment can be easily transported.

Premium - optional - cart (equipped with doors and lock)
Ext. dimensions 570 x 585 x 920 mm (WxDxH)
Load-bearing capacity per shelf: 20kg
Anodised aluminium cart with shelves, equipped with doors and lock with key, handle, 4 anti-marking grey rubber caster wheels (diameter 100 mm) and 2 independent brakes.

The cart is designed to house and fix Giselle® 1.0 (top shelf), 2 tap and waste water tanks and other accessories (lower shelf with doors), so that the equipment can be easily transported.



Fixing kit
The kit includes 4 nuts and 4 feet that allow for fixing the machine to the cart shelf and adjusting its levelling.



Thermal printer - optional
Ext. dimensions 85 x 150 x 65 mm (WxDxH)
The thermal printer is supplied with appropriate labels for printing the data relative to the production of Soleva™ (concentration, date and time of production), to be attached to the spray bottle.

Installation

4.1 Unpacking

Verify whether the packaging box contains the following items:
- N° 1 tube kit for water supply and discharge
- N° 1 fixing kit
- N° 1 power suplly cord

Carefully check that the machine has not suffered any damages during transport; if so, notify the supplier.
Check that the following items are available:
- Water supply and discharge tanks
- Spray bottles for producing and applying Soleva™
- Salt cartridges not expired
- Citric acid cartridges for cleaning and maintenance

4.2 Correct positioning

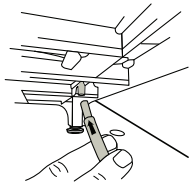
WARNINGS
- Do not install the machine in a room classified at risk of explosion for flammable gas/vapour/powders.
- Assess the adequacy of the place where to install the machine on the basis of the quantity of emitted hydrogen (0.19 l/min during production of the solution).
- Verify that the facility and installation where Giselle® 1.0 is installed conform to the relevant safety regulations.
- Ensure that the equipment is installed in a safe location to prevent uncontrolled access, tampering with the devices or water supply difficulties.
- Install the device in a well ventilated and clean room NFPA497 requires at least 6 air changes per hour.
- Install the device far away (at least 1m) from sources of heat, flames and sparks or other possible sources of ignition.

- Place the device in locations where there are no patients with life-sustaining devices.
- Keep the device in places where there are only devices complying with CEI EN 61326.1 for electromagnetic compatibility.
- Do not position the device near walls or ther objects that could limit the ventilation around the machine. Position it at least 1m far.
- Clean the room in order to avoid presence of dirty into the ventilation slits of the machine.

PRECAUTIONS

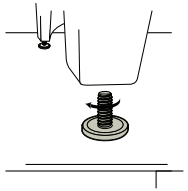
- Transport and handle with care. The device weighs 14 kg. If necessary, use appropriate mechanical aids (for example, manual pallet jacks jacks or forklift trucks). Use suitable personal protection equipment.
- Position the device on a flat and sturdy surface.
- Giselle® 1.0 is designed to operate in a fixed and stable position.

If no cart is available

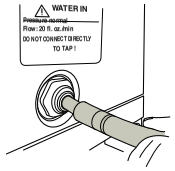


1. Place Giselle® 1.0 on a flat, sturdy surface at about 900-1,000 mm above the floor.

2. Tilt Giselle® 1.0 slightly and connect the drainage tube to the connection marked by the DRAIN label on the lower side of the device.



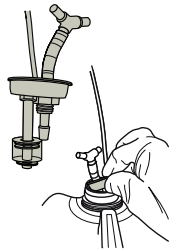
3. Insert the feet of the fixing kit into the appropriate threaded housings then - with the aid of the bubble level on the upper part of Giselle® 1.0 - turn them until the bubble is centred, so as to balance out the surface's irregular features. Giselle® 1.0 must operate in a stable position.



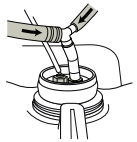
4. Connect the water feed tube to the connection situated on the rear of Giselle® 1.0, identified by the WATER IN label.

5. Connect the discharge tube to the connection situated on the rear of Giselle® 1.0, identified by WATER OUT.

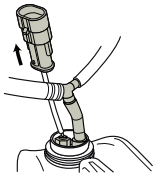
6. Position the tanks beneath the support surface of Giselle® 1.0 at about 900-1,000 mm of distance.



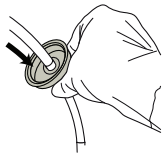
7. Arrange the connector of the discharge tank fixing it to the waste water tank.



8. Connect it to the DRAIN and the DISCHARGE tubes.

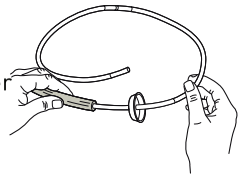


9. Connect the level sensor.

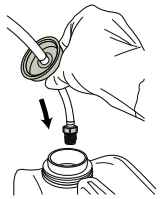


10. Insert the tube for tap water in the hole on the undercap.

11. Insert the overtube on the water supply tube.

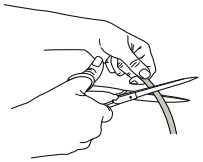


12. Insert the steel terminal on the supply tube and verify whether it reaches the bottom of the Tap Water Tank.

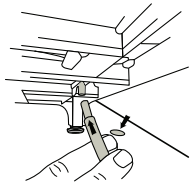


With Premium or basic cart is available

1. Place Giselle® 1.0 on the top shelf of the cart.



2. Cut the drainage tubes (DRAIN) and water discharge and supply tubes (WATER OUT and WATER IN) where indicated by the scissor symbol.



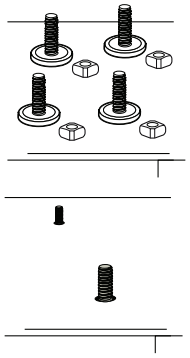
3. Tilt Giselle® 1.0 slightly and connect the drainage tube to the connection marked by the DRAIN label on the lower side of the device, then feed the tube through the large hole on cart's top shelf and on the inner shelf (Premium cart only).

4. Connect the water feed tube to the connection situated on the rear of Giselle® 1.0, identified by the WATER IN label.

5. Connect the discharge tube to the connection situated on the rear of Giselle® 1.0, identified by WATER OUT.

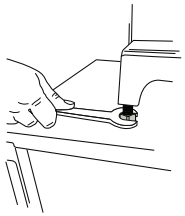
6. Position the tanks on the cart's lower support shelf.

7. Fix Giselle® 1.0 to the cart shelf using the feet and nuts provided, according to the following procedure:



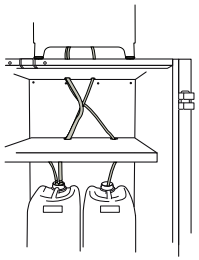
a. Ensure that the threaded part of the feet emerges from the appropriate holes on the support surface.

b. Screw the nuts onto the threading without tightening them.

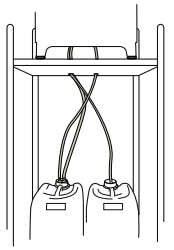


c. Insert the threaded part into the feet of Giselle® 1.0 and tightness firmly.

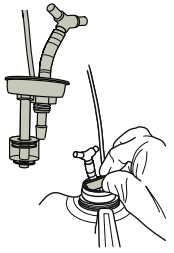
d. Use the bubble level located on the top part of Giselle® 1.0 to adjust the nylon feet, until the bubble is centred: Giselle® 1.0 must operate in a stable position.



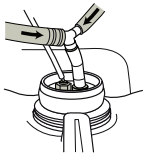
8. If Giselle® 1.0 comes with the Premium cart, feed the "DRAIN" and "WATER OUT" tubes through the large hole and the "Water IN" tube through the small hole on the cart's upper shelf then through the holes on the inner shelf; with the basic cart, simply let the tubes drop below the upper shelf.

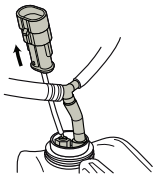


9. Arrange the connector of the discharge tank fixing it to the waste water tank.

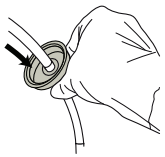


10. Connect it to the DRAIN and the DISCHARGE tubes.



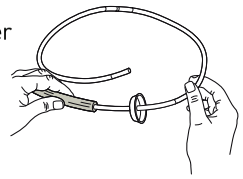


11. Connect the level sensor.

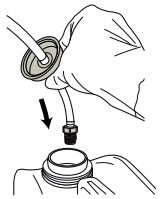


12. Insert the tube for tap water in the hole on the undercap.

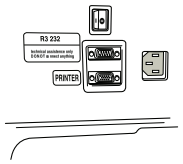
13. Insert the overtube on the water supply tube.



14. Insert the steel terminal on the supply tube and verify whether it reaches the bottom of the Tap Water Tank.



4.3 Electrical connections



WARNINGS

- Verify conformity to all electrical regulations.
  Failure to observe such regulations shall void the Industrie De Nora warranty.
- The device must be properly earthed. Always use an electrical system having an earth connection.
- Do not remove or cut parts of the plug for earthing the power socket.
- Do not deactivate or tamper with the electrical interlocks or lockout mechanisms.
- Connect the device only to a 100-240V ~ 50/60Hz 250 W max. electrical source.
- Do not attempt to repair, replace or modify the power cord.
- Do not pull the cord.
- All the electric cables and connections in use must be free of defects or damages (cuts, abrasions or other elements that may be risk of electrocution).
- If any water sources are nearby, take the necessary precautions to protect the electrical components.

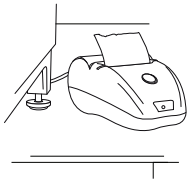
PRECAUTIONS

- If the Industrie De Nora device is subjected to voltage variations exceeding ± 10% or blackouts, electrical storms, incorrect earthing, or harmonic effects, Industrie De Nora S.p.A. recommends installing an uninterruptible power supply (UPS), or a surge arrester in order to protect sensitive electrical components.
- Do not modify the cable connectors as it is a potential risk.
- If an extension is needed, only use certified components.

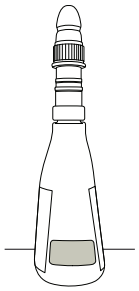
Connect the power cord to the electrical outlet IEC C14.

NOTE: a RS-232 port is available on the right-hand side wall for technical assistance: do not connect anything to it.

4.4 Printer connection (if printer is supplied)



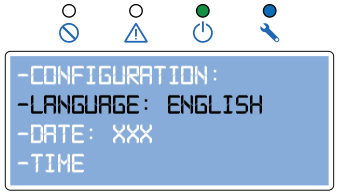
Connect the printer to the "PRINTER" serial port on the right-hand side of Giselle® 1.0.

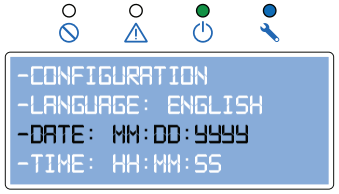


If the printer is purchased subsequently to Giselle® 1.0, install it as indicated in Section **4.7**. Every time a Soleva™ solution is produced, a label will be printed containing the concentration and date of production. The label may applied over the space reserved on the bottle.

4.5 Configuration

Press the ON/OFF switch on the right-hand side of the machine. After the initial start-up, a salt cartridge must be inserted into the machine (Section **5.2**).



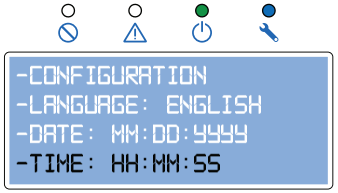


Language/date/time configuration: LANGUAGE
The following 4 options are available: ITALIAN/ ENGLISH/ SPANISH/JAPAN.
When the machine is switched on, the default language is English.

- PRESS THE MENU BUTTON
- Move onto Language using the UP/DOWN arrow buttons
- PRESS START/OK
- Move onto the desired language using the UP/DOWN arrow buttons
- PRESS START/OK
- PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window in the desired language.

Language/date/time configuration: DATE
To set the date:

- PRESS THE MENU BUTTON
- Use the UP/DOWN arrow buttons to highlight the DATE
- CONFIRM BY PRESSING THE START/OK BUTTON
- Use the RIGHT/LEFT arrow buttons to move onto month/day/year
  Use the UP/DOWN arrow buttons to set the day, month and year



CONFIRM BY PRESSING THE START/OK BUTTON

PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.

Language/date/time configuration: TIME

Press the MENU button to set the time

Use the UP/DOWN arrow buttons to highlight the TIME

PRESS THE START/OK BUTTON

Use the RIGHT/LEFT arrow buttons to move onto: HOURS: MINUTES: SECONDS
Move UP/DOWN with the cursor to set the time

CONFIRM BY PRESSING THE START/OK BUTTON

PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.

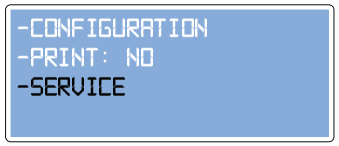
NOTE: only if English or Spanish have been set with the wording am/pm appear alongside the time.

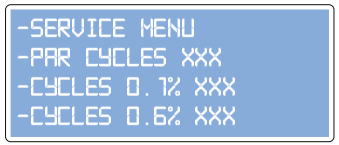
4.6 Configuration of the concentration

Giselle® 1.0 is configured for producing Soleva™ in 2 different concentrations:

Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.1% Free Available Chlorine	BLUE	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

The choice of the concentration can be made before each production cycle.
For limiting the production to a single concentration, the following steps must be performed:





MENU PRESS THE MENU BUTTON

Move down the menu and highlight SERVICE using the UP/DOWN arrow buttons

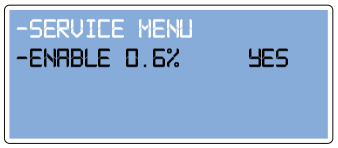
START OK PRESS THE START/OK BUTTON

Enter the password

After entering the password, the adjacent window will appear

Move down the menu using the UP/DOWN arrow buttons and highlight **ENABLE 0.6%**

PRESS START/OK



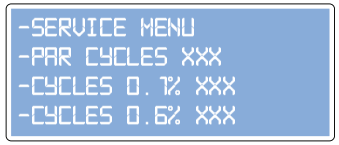
For **eliminating** the possibility of producing the solution with **0.6%** concentration:

USE THE UP/DOWN ARROW BUTTONS to select NO then confirm by

PRESSING THE START/OK BUTTON

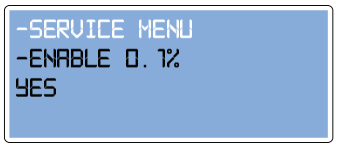
For **confirming** the possibility of producing the solution with **0.6%** concentration:

PRESS THE START/OK BUTTON DIRECTLY



Move down the menu using the UP/DOWN arrow buttons and highlight **ENABLE 0.1%**

PRESS START/OK



For **eliminating** the possibility of producing the solution with **0.1%** concentration:

use the UP/DOWN ARROW BUTTONS to select NO then CONFIRM by

PRESSING THE START/OK BUTTON

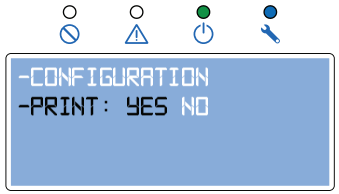
For **confirming** the possibility of producing the solution with **0.1%** concentration:

PRESS THE START/OK BUTTON DIRECTLY

PRESS BACK TWICE to return to the main window.

4.7 Printing configuration

Giselle® 1.0 is automatically configured to operate with an external printer.
If the printer was not purchased, it is necessary to uninstall it by performing the steps indicated below.
It can be reinstalled at any time by performing the steps indicated below.



PRESS THE MENU BUTTON
Use the UP/DOWN arrow buttons to highlight PRINT

PRESS THE START/OK BUTTON
SELECT **YES/NO** using the UP/DOWN arrow buttons

PRESS THE START/OK BUTTON
PRESS BACK: after a few seconds the machine will return to the initial window

Operation

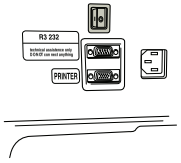
Before operating in this section, carefully read the
"General precautions and warnings" section and wear protective gloves and glasses.

ATTENTION

- **Do not move Giselle® 1.0 while it is operating.**
- **If the machine must be moved, switch it off and transport it using the appropriate cart or, if the latter is not available, always keep it in the vertical position. Do not turn it upside down.**
- **Plug is used as disconnect device from AC mains: the socket-outlet shall be installed near the equipment and shall be easily accessible.**

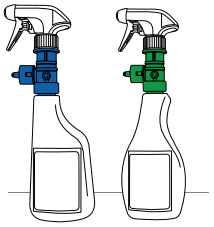
5.1 Start-up operations

Check that the WASTE WATER TANK is not full: its contents must not reach the threshold level.
If this occurs, it must be emptied in conformity to the procedures set forth in the local regulations.



Verify that there is water in the "TAP WATER TANK".
If it is empty, fill it with potable water up to the indicated level.

Check that there are empty spray bottles available:
Blue bottle to prepare low concentration Soleva™ (0.1%)
Green bottle to prepare high concentration Soleva™ (0.6%)
Switch the machine on by pressing the ON/OFF (1/0) button.



Reconfigure LANGUAGE/DATE/TIME/CONCENTRATION/PRINT if necessary. Consult Section **4.5**.

After a few seconds, one of the following windows will appear:

```
-DE NORA NEXT-GISELLE
-MM:DD:YYYY HH:MM:SS
-DOSES NUMBER:  START
XX#: 0.1% / YY: 0.6%
```

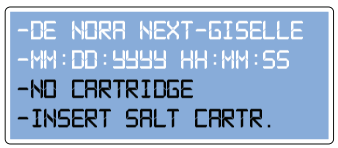
Giselle® 1.0 is ready to produce and indicates the number of available doses.

It is possible to proceed with the production of Soleva™ (Section **5.3**)

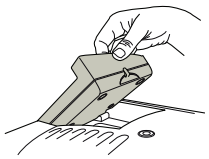
```
-DE NORA NEXT-GISELLE
-MM:DD.:YYYY HH:MM:SS
-DOSES NUMBER: XX
-START CCC%
```

ATTENTION
For every other window, consult Section 7.0 SIGNALS AND ERRORS of the manual.

5.2 Cartridge insertion



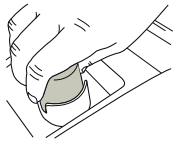
The following window indicates the need to insert a new cartridge.



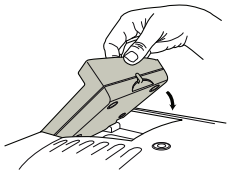
The upper panel is unlocked and can be opened.
If the panel is not opened within about 30 seconds, the safety lock automatically engages and the panel cannot be opened.
If this occurs, simply switch the machine off then on again: the previous window will reappear and the panel can be opened once again.

- Open the panel
- Take one salt cartridge, check the expiration date on the bottom, shake the salt cartridge vigorously
- Remove the cap.
  Empty the cartridge inside the Giselle cartridge compartment.

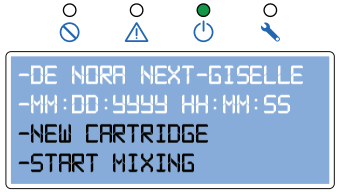
PRECAUTIONS
Only use original salt cartridges supplied by Industrie De Nora S.p.A. and carrying the De Nora Next logo.



Insert the cartridge in the appropriate compartment and press it down.
Tap the bottom of the cartridge to facilitate salt spilling out.
Check the complete emptying of the cartridge and push the salt residues, present in the cartridge compartment , down inside the machine.

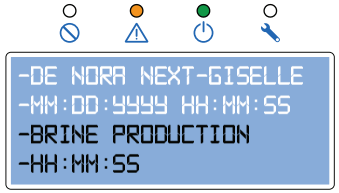


Close the panel.

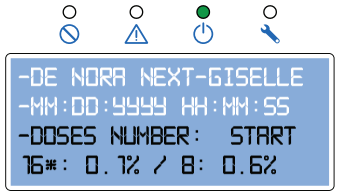


The adjacent window will appear.
START/OK PRESS THE START/OK button.

ATTENTION
In this phase, do not touch the machine and/or the buttons.

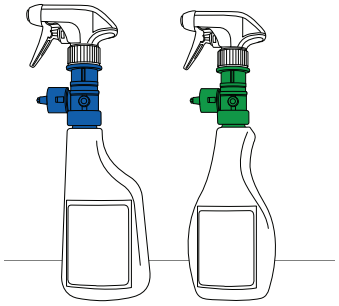


The count down is indicating how much time is required.



At the end the adjacent window will appear and the machine is ready to operate: there are 16 solutions available at 0.1% and 8 solutions at 0.6%.
The asterisk indicates the selected concentration.

Proceed with the preparation of Soleva™ (Section **5.3**) or stop the machine by pressing the ON/OFF (1/0) button.

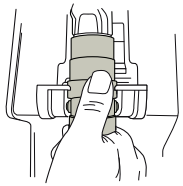


5.3 Production of Soleva™

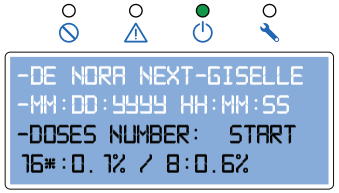
Before starting the production of Soleva™, verify that the start-up operations (Section **5.1**) have been performed and that the cartridge has been inserted, if necessary insert it (Section **5.2**).

Decide the concentration to be produced: 0.1% or 0.6%.

Take:
- the **blue spray bottle** for producing the 0.1% solution
- the **green spray bottle** for producing the 0.6% solution



- Check that the bottle is empty and that the solution it contains is expired
- Empty the bottle or take a empty one
- Clip the spray bottle onto the Giselle® 1.0 fork: push it until the connector on the fork clicks

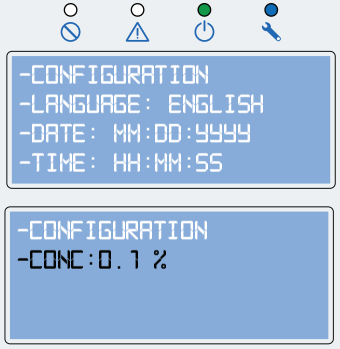


The control panel will visualise a window summarising the number of solutions available for each concentration and on which concentration the machine has been set.

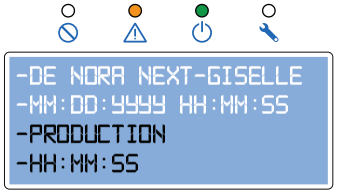
To change the concentration entered on the machine (indicated by the asterisk*), proceed as follows:

ATTENTION
if only one concentration has been set, in order to change it, before it is required to proceed with concentration configuration (Section 4.6).

CONCENTRATION CHANGE



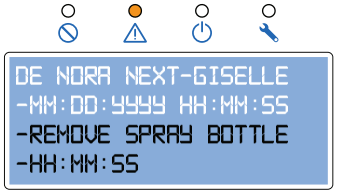
- PRESS THE MENU BUTTON
- Move down the menu and highlight CONC using the UP/DOWN arrow buttons
- PRESS THE START/OK BUTTON
- If necessary, change the concentration using the UP/DOWN arrow buttons Press the START/OK button to confirm the chosen concentration
- PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.



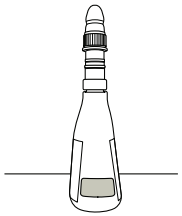
Verify that the machine is set to the desired concentration (indicated by the asterisk *) and PRESS THE START/OK BUTTON.

The adjacent window will appear and the count down will indicate how much time is required to complete the production cycle. If the window will not appear, consult the section **7.0** "Signals and Errors".

ATTENTION
During this phase, do not touch the machine/fork/spray bottle and/or buttons! Wait until the machine requests the user to detach the bottle and only the yellow LED flashes.

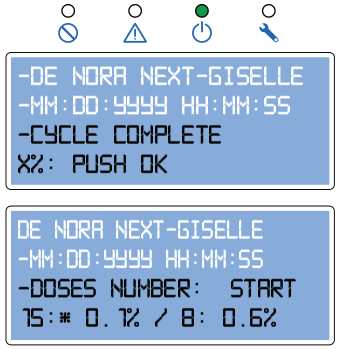


After the solution has been produced, the adjacent window will appear. It is possible to detach the spray bottle.
The count down is indicating how much time the machine requires to be ready for the next production.



Detach the spray bottle and attach the label to it or, if the printer has not been enabled or it isn't working, write production and expiration date/time on labels supplied for this purpose in permanent ink, as discussed in our user training.

ATTENTION
Remove the spray bottle gently avoiding rough movements up or down.



PRESS THE START/OK BUTTON
The machine will return to the initial window and will visualise the number of solutions still available.

ATTENTION
For every other window, consult Section 7.0 SIGNALS AND ERRORS of the manual.

5.4 Soleva™ solution direction for use

The Soleva™ solution is produced by Giselle® 1.0 in two different concentrations.

Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.1% Free Available Chlorine	BLUE	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

Soleva™ solution (0.1%)

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.1% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.1% Solution) from production and kept in sealed bottles. Do not use 48 hours after production time. Refer to the label indicating time of production.
- If the solution is expired dispose it in accordance with local regulation and prepare a new solution **(Section 5.3)**.
- SOLEVA 0.1% solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list refer to the below table).
- Pre-clean heavily soiled surfaces according to the instructions below.
- Spray SOLEVA 0.1% solution directly onto the surface to be sanitized. Thoroughly wet the entire surface. Wait 2 minutes before rinsing with potable water.
- **SOLEVA 0.1% has been tested in the presence of 5% organic soil (blood serum) against Staphylococcus aureus (ATCC 6538) on food contact surfaces and Klebsiella pneumoniae (ATCC 4352) on non-food contact surfaces.**

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

Soleva™ solution (0.6%)

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.6% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 24 hours (0.6% Solution) from production and kept in sealed bottles. Do not use 24 hours after production time. Refer to the label indicating time of production.

-If the solution is expired dispose it in accordance with local regulation and prepare a new solution (Section 5.3).

- SOLEVA 0.6% solution can be used as a disinfectant on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the below table.)
- **To kill fungi or Clostridium difficile spores, pre-clean surfaces according to the instructions below prior to spraying SOLEVA 0.6% solution.**
- Spray SOLEVA 0.6% solution directly onto the surface to be disinfected. Hold sprayer 6 to 8 inches from the surface. Thoroughly wet the entire surface. Wait 10 minutes before rinsing with potable water. Thoroughly rinse surfaces when steel or coated metals are treated.
- SOLEVA 0.6% kills: **Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa ATCC15442, Salmonella enterica ATCC10708, Trichophyton interdigitale ATCC9533, Poliovirus Type 1 (Sabin Strain LSc-2ab), Feline Calicivirus F-9 ATCCVR782, and Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), Clostridium difficile ATCC43598.**

Special Instructions for Cleaning and Decontamination Against HIV and HCV of Surfaces/Objects Soiled with Blood/ Bodily Fluids:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Blood and other body fluids must be thoroughly cleaned from surfaces and objects. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.

Infectious Materials Disposal: Blood and other body fluids should be autoclaved and disposed of according to Federal, State and local regulations for infectious waste disposal.

Special Pre-Cleaning Instructions Prior to Disinfection for Fungi and Clostridium difficile spores

Cleaning Instructions Prior to Disinfection of Heavily Soiled Surfaces or for Clostridium difficile spores:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before disinfection by application with a clean cloth, mop, and/or sponge saturated with the disinfectant product. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.

Infectious Materials Disposal: Materials used in the cleaning process that may contain feces/wastes are to be disposed of immediately in accordance with local regulations for infectious materials disposal.

PRECAUTIONS

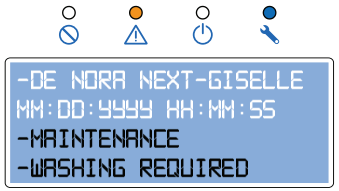
- Handle, store and dispose in accordance to the instructions on the safety sheet.

MATERIAL		Soleva™ COMPATIBILITY
Metal	AISI 316 steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI 316L steel	Good. It is advisable to rinse thoroughly after applying the product.
Alloy	Nickel/Titanium	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI 316Ti, EN 1.4571 steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Anodised aluminium	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Epoxy coated metals	Good. It is advisable to rinse thoroughly after applying the product.
Polymer	Fluoroelastomer FKM, FPM (Viton®)	Good
Polymer	Ethylene propylene diene monomer EPDM	Good
Polymer	Chlorosulfonated polyethylene CSM	Excellent
Polymer	Polypropylene PP	Good
Polymer	Polyethylene PE	Good
Polymer	Polycarbonate	Good
Polymer	Polyethylene terephthalate PET	Excellent
Polymer	High-density polyethylene HDPE	Excellent
Polymer	Polyvinylidene fluoride PVDF	Excellent
Polymer	Polyvinyl chloride PVC	Excellent
Polymer	Polytetrafluoroethylene PTFE (Teflon™)	Excellent

MATERIAL		Soleva™ COMPATIBILITY
Polymer	Polyaryletherketone, Polyetheretherketone PAEK, (PEEK™)	Excellent
Polymer	Silicone	Low
Polymer	Polyurethane PUR, PU	Good
Polymer	Polyoxymethylene copolymer POM	Good
Polymer	Polyamide PA6, PA66 (nylon)	Low
Polymer	Polybutylene terephthalate, PBT	Good
Polymer	Nitrile rubber NBR	Good
Polymer	Acrylonitrile butadiene styrene, ABS	Good
Ceramic		Excellent
Glass		Excellent

Maintenance and care

To ensure the machine's optimal operation, a washing with the maintenance cartridge must be regularly performed on Giselle® 1.0.
Moreover, it is advisable to clean Giselle® 1.0 with a damp cloth and to keep the support surface and cart interior dry.

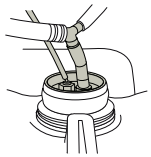


6.1 Washing with maintenance cartridge

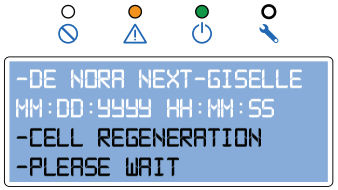
Giselle® 1.0 automatically performs the request of internal piping washing.
The adjacent window appears.

Remove the waste water tank and empty it.

WARNINGS
Handle, store and dispose the waste water as indicated on the label.

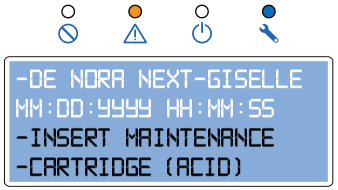


Reconnect the waste water tank.

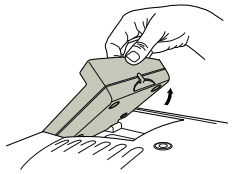


PRESS START/OK
The adjacent window will appear.

ATTENTION
DO NOT TOUCH the machine and/or buttons.

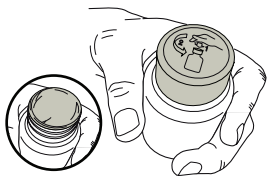


Wait until the adjacent window appears.



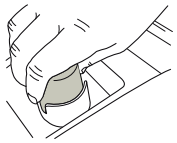
The upper panel is unlocked and can be opened. If the panel is not opened within about 30 seconds, the safety lock automatically engages and the panel cannot be opened; in such a case, simply switch the machine off then on again: the previous window will appear and the panel can be opened once again.

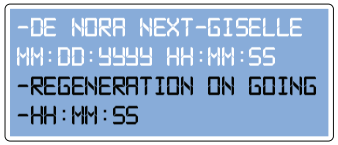
Take the maintenance cartridge. Wear personal protection equipment and remove the cartridge cap.
Empty the cartridge inside Giselle cartridge compartment.

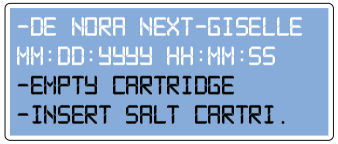


WARNINGS
- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on the label and safety sheet.

PRECAUTIONS
- Only use original citric acid cartridges supplied by Industrie De Nora S.p.A.







Insert the cartridge into the appropriate compartment.

Close the panel and PRESS START/OK, the adjacent window will appear.

ATTENTION
DO NOT TOUCH the machine and/or buttons. Time for regeneration cycle is indicated by the count down.

At the end, the adjacent window will appear.

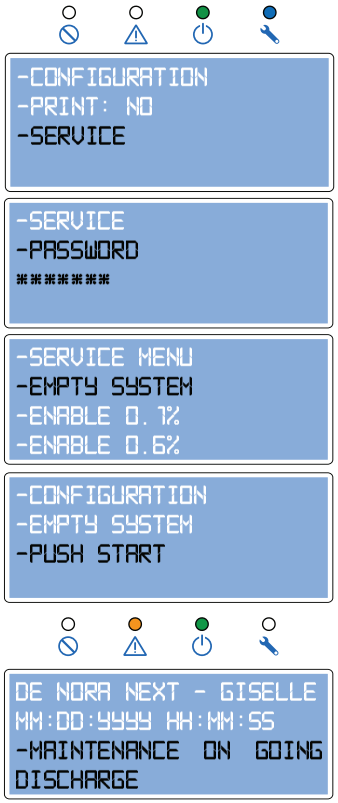
The upper panel will then be unlocked and can be opened. Remove the citric acid cartridge and close it with its own cap.

- Insert a new salt cartridge
- Remove the waste water tank and empty it
- Reconnect the waste water tank
- Proceed as indicated in Section **5.1** of the manual

WARNINGS
Handle, store and dispose the waste water as per local regulation.

6.2 Emptying the system

If Giselle® 1.0 must be moved by transport means (car, train, airplane, ship), the user either must use up the cartridge and sodium hypochlorite solution or otherwise empty the Giselle equipment of any remaining solution.



MENU PRESS THE MENU BUTTON

Move down the menu and highlight SERVICE using the UP/DOWN arrow buttons

START/OK Press START/OK

Enter the password

Move down the menu and highlight EMPTY SYSTEM using the UP/DOWN arrow buttons

START/OK Press START/OK

START/OK PRESS START/OK

The adjacent window will appear.

Wait until Giselle® 1.0 automatically returns to the initial window and the warning "EMPTY CARTRIDGE" will appear. Remove the cartridge, close the upper panel and proceed to package the machine.

Signals and Errors

7.1 Signals

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Wrong cartridge washing HH:MM:SS	GREEN inter-mitt.+ YELLOW ON	The system has detected a salt or acid cartridge but does not identify it as being valid	Non-original cartridge, incorrect use or expired cartridge	1) Wait until the machine automatically completes the wash cycle. When the window "Empty cartridge Change cartridge" appears, it is possible to open the upper panel 2) Open it and remove the cartridge 3) Replace the cartridge with a salt or citric acid cartridge supplied by Industrie De Nora S.p.A. (Section **5.2** or **6.1** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.
No cartridge insert salt cartri.	YELLOW ON	The system does not detect any cartridge	Cartridge not present or not detected	1) Open the upper panel (Section **5.2** of the manual) 2) Insert the new De Nora Next cartridge (Section **5.2** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.
Empty cartridge Insert salt cartri.	YELLOW ON	The system has detected an exhausted cartridge	Cartridge exhausted	1) Open the upper panel (Section **5.2** or **6.1** of the manual) 2) Insert the new De Nora Next salt cartridge (Section **5.2**) If the problem persists, switch the machine off and contact the technical assistance service.
Available 0.1% empty 0.6%	YELLOW ON	The salt in the cartridge is only available for preparing the 0.1% solution		**Proceed with the production of the 0.1% solution:** 1) select the 0.1% solution from the MENU (Section **5.3** of the manual) 2) press START/OK **Or empty the system (Section 6.2 of the manual)**
Maintenance washing required	YELLOW ON + BLUE ON	The system requests a wash cycle	Regular maintenance requested by the system	Proceed with the wash cycle (Section **6.1** of the manual)

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Maintenance on going discharge	GREEN intermitt.+ YELLOW ON	The system has detected an anomaly and will empty and rinse out the cell	Brine supply not correct	1) Wait until the machine automatically completes the wash cycle.
No production select concentration	YELLOW ON	The system detects the impossibility of procee-ding with the production of any solution	The production of both the 0.1% and 0.6% solution has been disabled	Configure the concentration (Section **4.6** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.

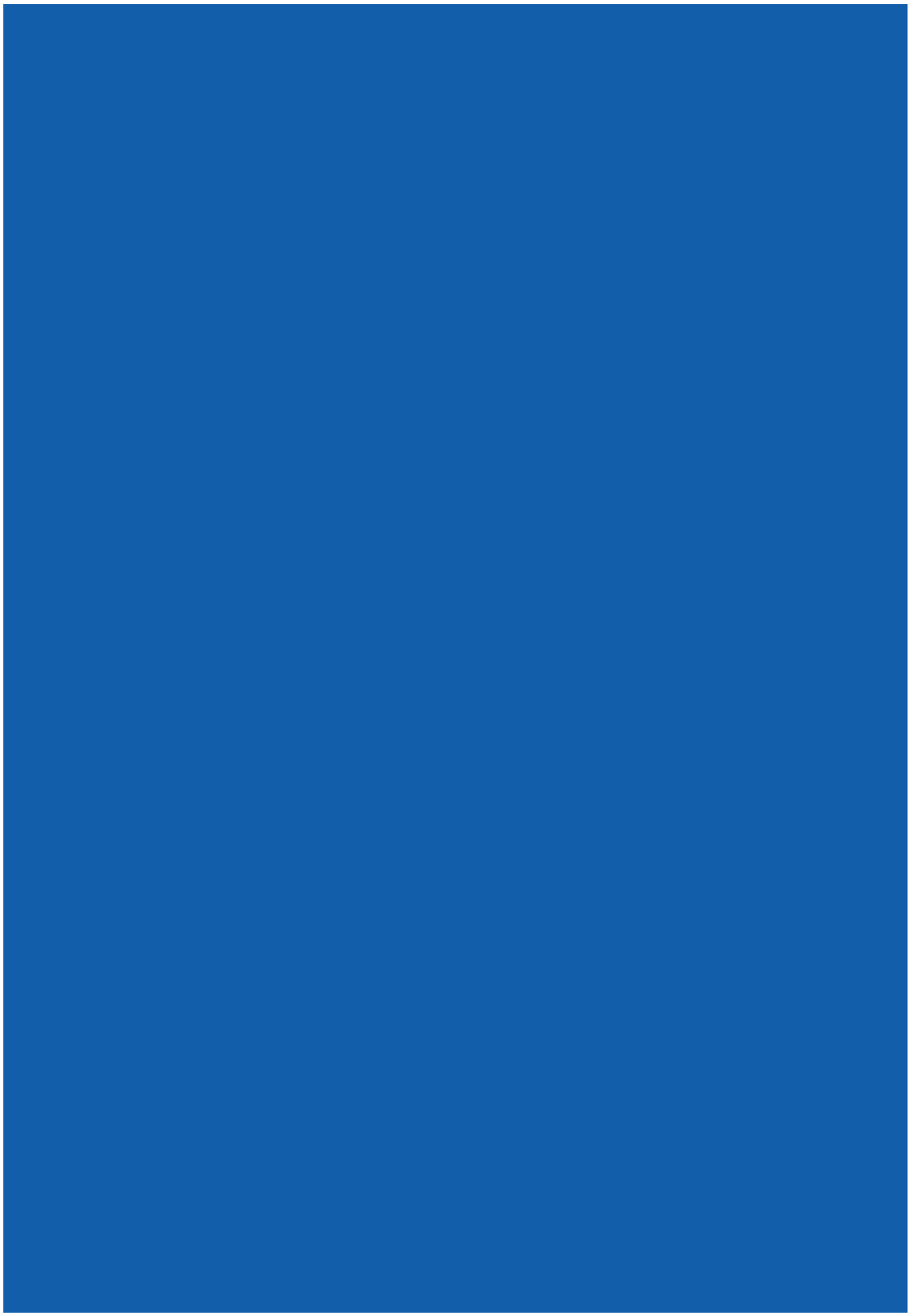
7.2 Errors

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: High temperature Unloading solution	RED intermitt.	The system signals that the cell temperature is high		1) Wait for the solution to be discharged until the successive window appears
Error: High temperature Waiting lower temp	RED ON	The system has detected high temperature and is waiting for it to fall below the threshold value		1) Wait until the successive window appears: ¨Temperature OK Press OK¨ green LED 2) Press START/OK If the problem persists, switch the machine off, contact the technical assistance service and report error **E001**
Error: Production Solution Discharge	RED intermitt.	The system has detected some problems that hamper the production of the solution		1) Wait for the solution to be discharged until the successive window appears
Error: Production **E005**	RED ON	The system has detected some problems that hamper the production of the solution		1)Turn off the machine, turn it on again and wait for home screen. 2)Proceed with emptying of the system (section 6.2 of this manual). 3) When the system requires to insert a new cartridge, open the top cover, remove the cartridge and check the cleaning of the louvers. Bring down the salt present on the louvers. 4)Insert a new cartridge of salt : be sure to empty the cartridge completely and make sure that the salt does not stop on the louvers (section 5.2 of this manual). If the problem persists, contact the technical assistance service and report error E005
Error: Production **E007**	RED ON	The system has detected some problems that hamper the production of the solution		1) Switch the machine off then on again If the problem persists, contact the technical assistance service and report error E007
Error: Water mix **E008**	RED ON	The system has detected some problems that hamper the production of the solution		1) Switch the machine off 2) Contact the technical assistance service and report error E008

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: Spray bottle load **E009**	RED ON	The system does not manage to transfer the Soleva™ solution to the bottle	The bottle was either touched or removed while Soleva™ was being produced	1) Switch the machine off 2) If necessary, remove the bottle and empty it 3) Switch the machine on again and wait until the initial window reappears 4) Clip on the bottle on and proceed with the production of the solution If the problem persists, switch the machine off, contact the technical assistance service and report error E009
Error: Water Loading **E010**	RED ON	The system does not manage to load water from the tank	The water tank is empty or the water supply tube is not positioned correctly	1) Verify whether there is any water in the tap water tank and that the tube reaches the bottom 2) Fill the tap water tank up to the blue level indicated, while ensuring that the tube reaches the bottom 3) Switch the machine off then on again and wait until the initial window reappears If the problem persists, switch the machine off, contact the technical assistance service and report error E010
Error: Water drainage **E011**	RED ON	The system does not manage to discharge the washing water into the discharge tank	The water discharge tank is full	1) Discharge the waste water tank and then reconnect it to the machine 2) Switch the machine off then on again If the problem persists, switch the machine off, contact the technical assistance service and report error E011
Error: Watch battery **E012**	RED ON	The system signals that the clock battery is exhausted		1) Contact the technical assistance service and report error E012 2) Press ok, the machine will go on the home screen 3) Check date and time, if they aren't correct change them (sec. 4.5 of this manual) 4) Proceed with the regular use of the machine waiting for technical intervention
Error: High temperature **E013**	RED ON	The system signals that the machine is not functioning properly and that the temperature is too high		1) Switch the machine off 2) Contact the technical assistance service and report error E013

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: Hydrogen vent **E014**	RED ON	The system signals that the machine is not functioning properly and that the fan is blocked		1) Switch the machine off 2) Contact the technical assistance service and report error E014
Error: RFID reader **E016**	RED ON	The system signals a malfunction concerning the RFID control system		1) Swith the machine off 2) Contact the technical assistance service and report error E016
Error: Printer **E017**	RED ON	The system signals that the printer is not able to print	The printer is not connected, is not installed or it malfunctions	**If a printer is available:** 1) Verify that the printer is connected; if not, connect it 2) Verify that the labels are in the printer and load them 3) Verify that the printer is installed; if not, install it (Section **4.7**) 4) Verify that the labels are not rolled. Possibly unfold the roll and close the top cover of the printer. 5) Switch the machine off then on again Printing will be possible with the successive production cycle; for the current production cycle, use the manual label. If the problem persists, switch the machine off, contact the technical assistance service and report error E017 **If no printer is available:** 1) Press BACK 2) Withdraw the bottle and wait until the production cycle ends 3) At the end, verify that the printer has not been installed, consult Section **4.7** and select NO

NOTES



Industrie De Nora, Via Bistolfi 35, 20134 Milan, Italy
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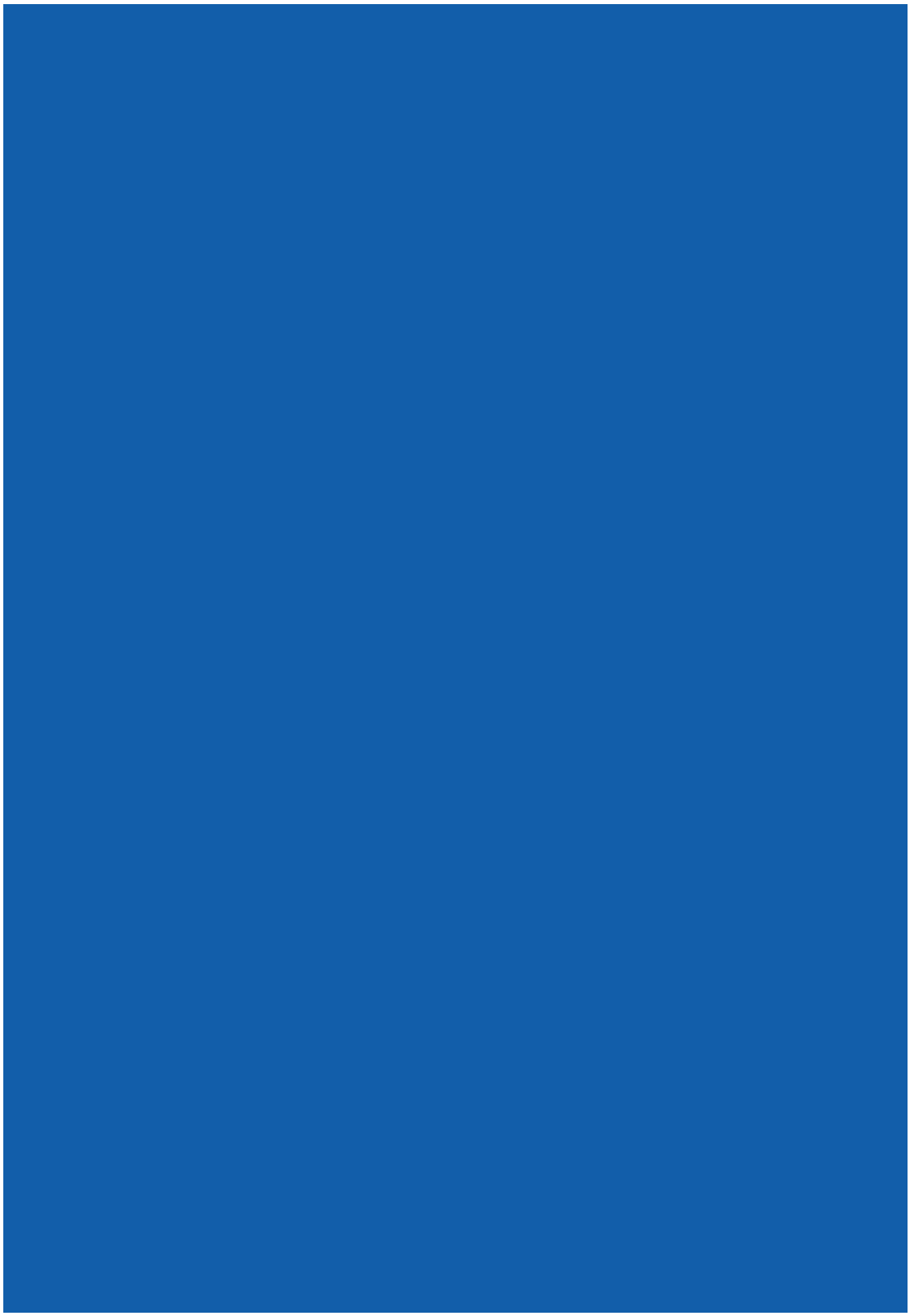
Aiselle®

2.0 User and installation manual

DE NORA NEXT

a De Nora Business Unit



For best performance, Industrie De Nora S.p.A. recommends reading the manual thoroughly before installing and using the equipment. Store this manual in an easy accessible location so that operators can consult it at any time.

Product: **Giselle® 2.0**
Giselle 2.0 produces the 0.6% and 0.05% solutions.
Users of Giselle® 2.0 to produce the 0.6% and the 0.05% solutions cannot sell the solution or distribute it to other facilities.

Manufactured by: **Industrie De Nora S.p.A. - Via Bistolfi 35, 20134 Milano, Italy**

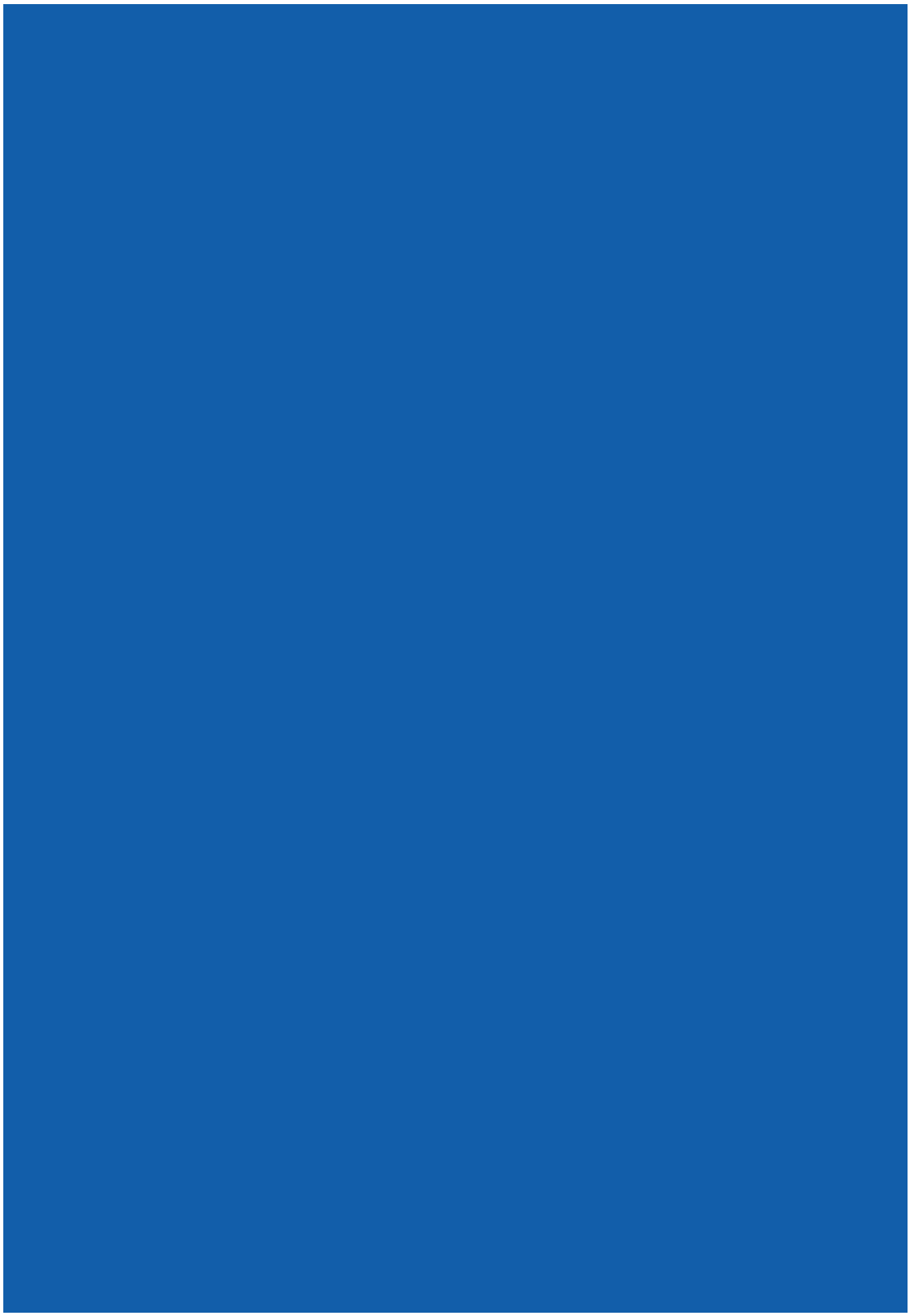
Installed by: .....

Date of installation: .....

Location of installation: .....

For technical assistance, please contact:
Industrie De Nora S.p.A.
Via Bistolfi 35, 20134 Milano, Italy

Tel: +39 (340) 9912737
Fax:+39 02 21292831
Email:info@denoranext.com



Contents

DE NORA NEXT
a De Nora Business Unit

Using the manual

Thank you for purchasing the Giselle® 2.0 unit and its accessories.

This manual aims to provide the following information to the operator:

- Safety measures
- Installation instructions
- Operating instructions
- Routine maintenance instructions

This manual must be stored in an easily accessible location.

Read carefully the manual before operating the device.

Observe all the relevant warnings and precautions during the installation, operation and maintenance of Giselle® 2.0 and its accessories.

The operator is responsible for ensuring that Giselle® 2.0 and its accessories are implemented in accordance with the instructions of this manual. If the device is used in ways other than those indicated in this manual, Industrie De Nora S.p.A will not provide any warranty and it will not take responsibility for any damage to people or other objects.

In case of malfunctions requiring advanced technical interventions, please contact:
Industrie De Nora S.p.A., Via Bistolfi 35, 20134 Milano, Italy - Tel: +39 (340) 9912737 - Email: info@denoranext.com

DE NORA NEXT a De Nora Business Unit

General precautions and warnings

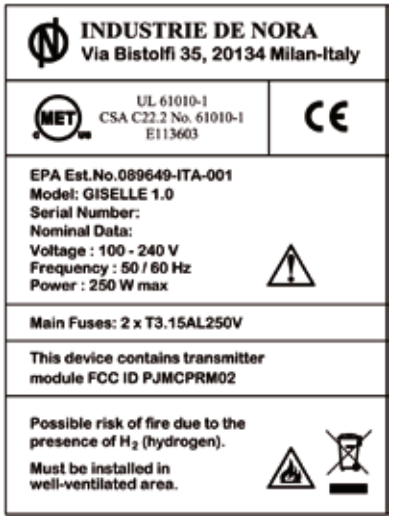
2.1 Declaration of conformity

Industrie De Nora S.p.A. declares that this product conforms to the following directives:

- 2006/95/CE (LDV)
- 2004/108/CE (EMC)

European standards:
- EN 61010-1: 2001
- EN 61326-1: 2006
- ETSI EN 301489-1 V1.8.1: 2008
- ETSI EN 301489-3 V1.4.1: 2002

Standards for USA and Canada:
- FCC Part 15 subpart B
- EPA regulations - 40 CFR, Part 152.500
- EPA Est. No. 089649-ITA-001



2.2 PPE (Personal Protection Equipment)

Operating Giselle® 2.0 involves handling various chemical substances: therefore, prior to using the device, it is advisable to carefully read the manual, labels and safety sheets.
It is advisable to use protective glasses and gloves.

2.3 Safety measures

In this manual, the safety measures are subdivided into WARNINGS and PRECAUTIONS.

WARNINGS
If these instructions are not observed, the device may damage objects, cause injury to persons or loss of life.

PRECAUTIONS
If these instructions are not observed, the device may cause light or serious damage to objects, or personal injury.
The following WARNINGS AND PRECAUTIONS must be observed.

2.4 General safety

WARNINGS

- In order to prevent fires, explosions or injury, do not operate the device near flammable, hazardous or corrosive gases. Do not attempt to dismantle, repair or modify the device on your own. Intervening incorrectly may cause electric discharges and fires.
- Do not place any object on top of the device.

- Do not introduce objects inside the device or in the tank.
- Do not obstruct the vent on the upper section of the device's tank. This may cause the pressure inside the tank to increase sharply which may result in leakages, liquid jets and explosions.
- Clean periodically the ventilation slits, on the top and on both sides of the machine, in order to avoid modifications or reduction of the machine ventilation.
- Persons without adequate training should not attempt to install or use the device.
- Only personnel authorized by Industrie S.p.A De Nora can repair and mantain Giselle 2.0.
- The solution produced by Giselle® 2.0 (sodium hypochlorite) can be a sanitizer or a disinfectant —NOT DRINKING WATER—and therefore must NOT be swallowed.

PRECAUTIONS

- Do not place any containers with water or other liquids on top of the device. Water may accidentally leak into the device and jeopardise the electrical insulation, causing electric shocks.
- Only use Giselle® 2.0 with spray bottles and cartridges provided by Industrie De Nora S.p.A..

2.5 Electrical safety

WARNINGS

- Verify conformity to all electrical regulations.
  Failure to observe such regulations shall void the Industrie De Nora warranty.
- The device must be properly earthed. Always use an electrical system having an earth connection.
- Do not remove or cut parts of the plug for earthing the power socket.
- Do not deactivate or tamper with the electrical interlocks or lockout mechanisms.
- Connect the device only to a 100-240V ~ 50/60Hz 250 W max. electrical source.
- Do not attempt to repair, replace or modify the power cord.
- Do not pull the cord.

- All the electric cables and connections in use must be free of defects or damages (cuts, abrasions or other elements that may be risk of electrocution).
- If any water sources are nearby, take the necessary precautions to protect the electrical components.

PRECAUTIONS

- If the Industrie De Nora S.p.A. device is subjected to voltage variations exceeding ± 10% or blackouts, electrical storms, incorrect earthing, or harmonic effects, Industrie De Nora recommends installing an uninterruptible power supply (UPS), or a surge arrester in order to protect sensitive electrical components.
- Do not modify the cable connectors as it is a potential risk.
- If an extension is needed, only use certified components.

2.6 Installation site

WARNINGS

- Do not install the machine in a room classified at risk of explosion for flammable gas/vapour/powders.
- Assess the adequacy of the place where to install the machine on the basis of the quantity of emitted hydrogen (0.19 l/min during production of the solution).
- Verify that the facility and installation where Giselle® 2.0 is installed conform to the relevant safety regulations.
- Ensure that the equipment is installed in a safe location to prevent uncontrolled access, tampering with the devices or water supply difficulties.
- Install the device in a well ventilated and clean room. NFPA497 requires at least 6 air changes per hour.
- Install the device far away (at least 1m) from sources of heat, flames and sparks or other possible sources of ignition.
- Place the device in locations where there are no patients with life-sustaining devices.
- Keep the device in places where there are only devices complying with CEI EN 61326.1 for electromagnetic compatibility.

- Do not position the device near walls or ther objects that could limit the ventilation around the machine. Position it at least 1m far.
- Clean the room in order to avoid presence of dirty into the ventilation slits of the machine.

PRECAUTIONS

- Transport and handle with care. The device weighs 14 kg. If necessary, use appropriate mechanical aids (for example, manual pallet jacks or forklift trucks). Use suitable personal protection equipment.
- Giselle® 2.0 is designed to operate in a fixed and stable position.

FURTHER INFORMATION:

During normal operation of Giselle® 2.0

- The device emits low level noise.
- The external surfaces are at ambient temperature or slightly higher. There is no risk of burns.
- The device does not emit any significant vibrations.

2.7 Treatment of chemical substances

Information on the raw materials

The basic elements intervening in the production process of Giselle® 2.0 include:

- Potable tap water
- Electrical power
- Salt (sodium chloride 99.86%), provided as "Salt Cartridge for Giselle®"
- Citric Acid Monohydrate (Solid-100%), provided as "Maintenance Cartridge for Giselle®"

This cartridge cannot be used to produce a solution that will treat surfaces against pest.

1. Salt (sodium chloride 99.86%)

Sodium chloride is supplied by Industrie De Nora S.p.A. in a high-density polyethylene sealed cartridge. The substance is classified as NON HAZARDOUS pursuant to OHSA criteria.
In case of need, consult the safety sheet.

PRECAUTIONS

Only use original salt cartridges supplied by Industrie De Nora S.p.A. and carrying the De Nora Next logo.
The salt cartridge are single use and cannot be refilled.

2. Citric Acid Monohydrate (Solid-100%)

The citric acid is supplied by Industrie De Nora S.p.A. in a high-density polyethylene sealed cartridge. The substance is classified as EYES IRRITANT H319 substance pursuant to OHSA criteria.

Causes serious eyes irritation

WARNINGS

- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on the label and safety sheet.

PRECAUTIONS

- Only use original citric acid cartridges supplied by Industrie De Nora S.p.A..

2.8 The Giselle® 2.0 solution (Soleva™)

Giselle® 2.0 produces Soleva™, a sodium hypochlorite solution in water, with two different concentrations:

Type of Soleva™ Solution	Concentration of active ingredients	Other Ingredients	pH
Low concentration	0.05% Free Available Chlorine	1% Sodium Chloride - 98.95% Water	9
High concentration	0.6% Free Available Chlorine	2% Sodium Chloride - 97.4% Water	9

The preparation is classified as NON HAZARDOUS pursuant to OHSA criteria.

PRECAUTIONS

- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on the label and safety sheet.

2.9 Waste water of Giselle® 2.0

The production of the Soleva™ solution and the cleaning and maintenance cycles (if any) produce waste water that is collected in a polyethylene tank connected to the machine. The tank is identified by the orange "Waste Water" label.
The waste water's composition may vary depending on the number and type of Soleva™ solutions produced and on the cleaning cycles effected.

The solution may contain citric acid, sodium hypochlorite, sodium chloride and water.

WARNINGS
- Read the label before use.
- Handle, store and dispose as per local regulation.

2.10 Respect for the environment

Packaging

The packaging of Giselle® 2.0 is made up of totally recyclable materials which must be disposed of in conformity to the local regulations.

- Cardboard
- Expanded PE (polyethylene)

Giselle® 2.0

Dispose of in conformity to the local regulations.

Plastic

- ABS (acrylonitrile butadiene styrene polymer)
- PE (polyethylene)
- PVC (polyvinyl chloride)
- PTFE (polytetrafluoroethylene)

Metal

- Titanium Grade 1
- RuOx (ruthenium oxide)
- IrOx (iridium oxide)
- 316L stainless steel
- Copper
- Iron
- Zinc

Rubber

- EPDM (ethylene propylene diene monomer)

Electronic materials

- Components

Accessories

Dispose of in conformity to the local regulations.

Salt cartridge

- HD PE (high-density polyethylene) cartridge
- Contents: 80g sodium chloride
- Paper label with antenna for RFID reading

Maintenance cartridge

- HD PE cartridge (high-density polyethylene)
- Contents: 25g of citric acid monohydrate (solid-100%)
- Paper label with antenna for RFID reading

Bottles for Soleva™ solutions

- HD PE (high-density polyethylene) bottles
- ABS (acrylonitrile butadiene styrene polymer) connector
- PE (polyethylene) labels

Tanks

- HD PE (high-density polyethylene) tanks
- PE (polyethylene) stoppers
- HD PE (high-density polyethylene) caps
- PE (polyethylene) labels

Tubes

- PVC (polyvinyl chloride) tubes
- PE (polyethylene) tubes
- PVDF (polyvinylidene fluoride), steel, nylon fittings

Standard cart

- Anodised aluminium alloy cart
- Rubber wheels

Premium cart

- Anodised aluminium alloy cart (equipped with doors and lock)
- Rubber wheels

Fixing kit

- Non alloy steel, PE (polyethylene), PA 6 (polyamide 6)
- Nylon nuts

Printer (s'print model supplied by Custom)

- ABS (acrylonitrile butadiene styrene polymer)
- Electronic components

Description

Giselle® 2.0 ™ is an electronic device for the on-site production of Soleva™, a sodium hypochlorite solution generated in two different concentrations (0.1 and 0.6% free available chlorine)

3.1 Process

The operating process leading to the production of Soleva™ can be summarised as follows:
$NaCl + H_2O + 2e^- \rightarrow NaOCl + H_2$

Salt + Water + Electricity $\rightarrow$ Soleva™ + Hydrogen
At the start of the process, the salt (sodium chloride - NaCl) is dissolved in water.
The salt is entirely broken down into sodium Na^+ and Chlorine Cl^- ions in solution:
$NaCl \rightarrow Na^+ + Cl^-$

This saline solution is transferred to the electrolysis cell where the following reaction occurs:
ANODE: $2Cl^- \rightarrow Cl_2 + 2e^-$
CATHODE: $2H_2O + 2e^- \rightarrow 2OH^- + H_2\uparrow$

Subsequently, the chlorine (Cl_2) and hydroxide ion (OH^-)
react to form sodium hypochlorite:
$Cl_2 + OH^- \rightarrow OCl^- + Cl^- + H^+$
The sodium hypochlorite remains in solution and can be used as a sanitizer or disinfectant depending on its concentration.

The Giselle® 2.0 device is equipped with an appropriate tank for preparing the salt solution. This solution is then transferred to the electrolysis cell where the above-mentioned electrochemical reaction takes place.
The necessary energy supplied to the system is electronically managed and controlled. The electrolysis cell is equipped with electrodes manufactured with catalytic coats exclusively supplied by Industrie De Nora S.p.A.. At the end of the process, after a few minutes of electrochemical reaction, the Soleva™ solution is transferred from the cell to the spray bottle and is ready for use.

The hydrogen, generated inside the cell through a cathodic reaction, rises to the top and exits the cell and system thanks to the fan and appropriate aeration vent.

The level switches, connected to the insertion fork, allow for measuring the correct amount of water and solution required for the process.

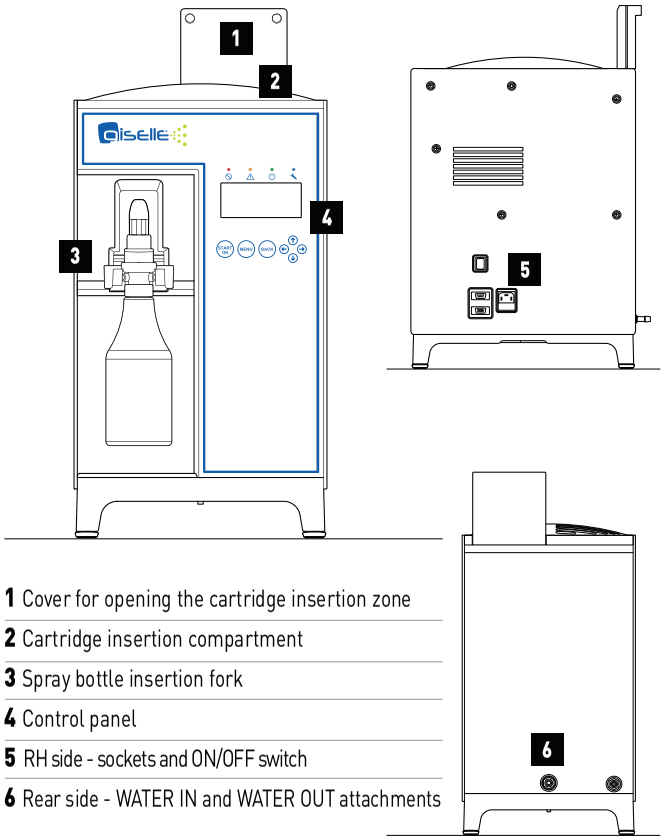
All the functions of the components and the entire process are electronically controlled by a proprietary firmware.

The RFID (Radio Frequency Identification) technology is used to guarantee maximum quality, reliability of Giselle® 2.0 and safety avoiding uncontrollable production of Soleva™.

3.2 Giselle® 2.0 technical data:

• Model	Giselle® 2.0
• Material	ABS,PTFE, PE, PVC, EPDM, Metals
• Production capacity	Up to 0.5 l of solution for each production cycle
• Power connection	100-240V~ 50/60Hz 250 W max.
• RFId Transmitter module RFId	FCC ID PJMCPRM02
• Feed water	Temperature from 10 to 29 °C - Atmospheric pressure
• Ambient temperature	Min 10°C, max 40°C
• Ambient relative humidity	Max 95% (without condensate build-up)
• Altitude	0-2000 m above sea level
• Water consumption	Roughly 10 l per salt cartridge
• Dimensions	310 mm x 420 mm x 550 mm (WxDxH)
• Weight	14 kg
• Protection rating	1
• Pollution degree	2
• Installation category	2
• Surfaces subject to heat	None
• Vibrations	Non appreciable
• Effluents/emissions	Hydrogen gas (diluted: 0.19l/min) during the solution production. Water with variable content of: sodium chloride, sodium hypochlorite, citric acid.
• Warranty	1 year
• Mains Fuses	2 x T3.15AL250V

The device is designed to operate in a stable vertical position. Indoor use only.
Voltage fluctuations shall not exceed +/- 10% of the nominal supply voltage.



1 Cover for opening the cartridge insertion zone

2 Cartridge insertion compartment

3 Spray bottle insertion fork

4 Control panel

5 RH side - sockets and ON/OFF switch

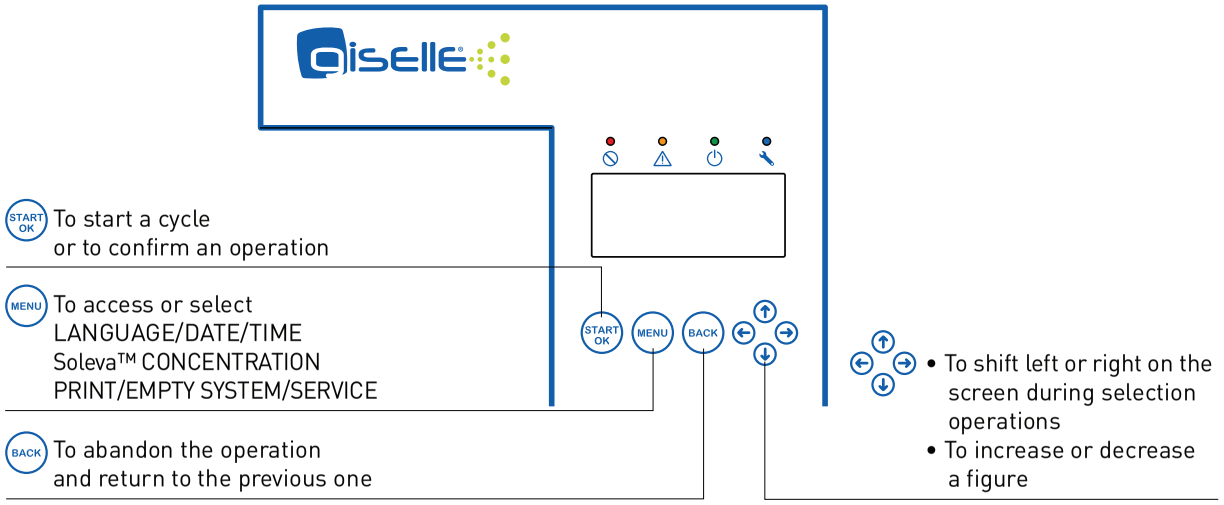
6 Rear side - WATER IN and WATER OUT attachments

Risk of fire: consult the section **Precautions and warnings** (Section **2.0**)

Do not dispose of this product as solid urban waste but bring to to appropriate waste collection facilities.

Important operating and maintenance (servicing) instructions in the literature accompanying the product.
Read carefully the manual.

Front panel



Indicator Leds

			
ERRORS: see Section **7.0** of the manual	**SIGNALS:** see Section **7.0** of the manual	**SYSTEM READY FOR OPERATION**	**MAINTENANCE:** see Section **6.0** of the manual

- Yellow + Blue Request for maintenance: see Section **6.0** of the manual
- Green + Blue Configuration: see Section **4.0** of the manual
- Green + Yellow System operating: do not touch

3.3 Soleva™

Soleva is a sodium hypochlorite solution produced by Giselle® 2.0 directly in the bottle equipped with spray nozzle, with which it can be applied.
The bottles supplied have 2 different colours and are used depending on the desired concentration of Soleva™.

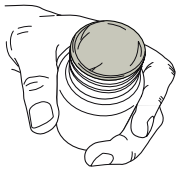
Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.05% Free Available Chlorine	GRAY	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

Low Concentration

High Concentration

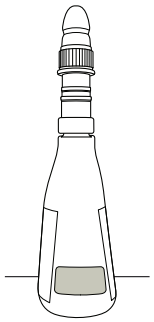
• Soleva Sodium Hypochlorite Solution (0.6%) is a one-step disinfectant for hard, non-porous surfaces, environmental and non-critical care equipment surfaces. Solution kills bacteria, fungi, viruses and spores. Cleans and deodorizes.
• Soleva Sodium Hypochlorite Solution (0.05%) is a One-step sanitizer for hard, non-porous surfaces, environmental and food contact surfaces. Cleans and deodorizes.
Soleva has been tested in agreement with OCSPP 810.2300 and OCSPP 810.2200 Guidelines.

3.4 Accessories



Salt cartridge
Size: 40 mm Ø x 75 mm Weight: 100 g
High-density polyethylene cartridge, provided with sealing gasket.
Contains the proper amount and type of salt for correctly operating Giselle® 2.0 (80 g).
Each cartridge comes with an RFID label so that it can be identified by Giselle® 2.0.

Maintenance cartridge
Size: 40 mm Ø x 75 mm Weight: 45 g
High-density polyethylene cartridge, provided with sealing gasket.
Contains the proper amount (25 g) and type of citric acid for performing cleaning and maintenance of Giselle® 2.0.
Each cartridge comes with an RFID label so that it can be identified by Giselle® 2.0.



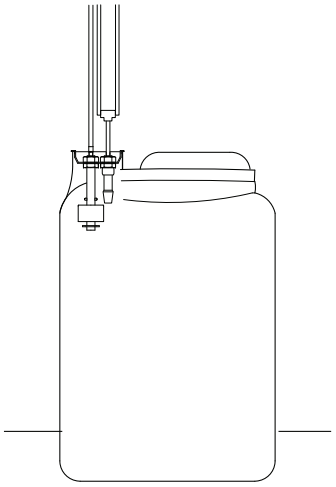
Soleva™ spray bottles
Gray bottle: Size: 80 x 96 x 290 mm (WxDxH) Weight (empty): 120 g
Green bottle: Size: 64 x 95 x 300 mm (WxDxH) Weight (empty): 120 g
High-density polyethylene bottles equipped with machine connector and nebuliser for producing and applying Soleva™ solutions. The bottles come in different sizes and include different colour labels and connectors: gray for solutions with 0.05% free available chlorine and green for 0.6% chlorine solutions. The labels applied to the bottles include the solution's instructions for use. The label with the relevant date and time of production of the solution (see Section 5.3) can be applied in the appropriate space.

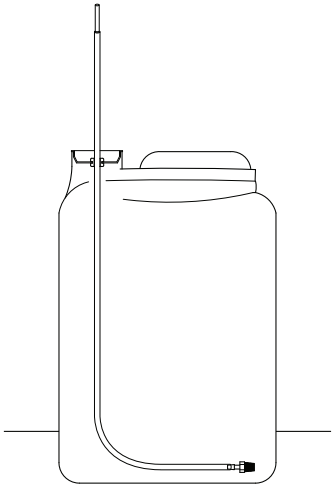
Tanks

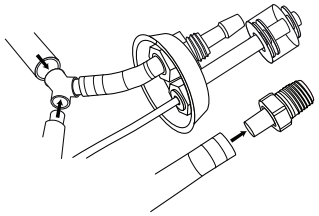
Ext. dimensions 200 x 210 x 325 mm (WxDxH) Weight (empty): 450 g Capacity: 11l
High-density polyethylene tanks for tap water and waste water.

The tanks are equipped with pierced stoppers for connection to Giselle® 2.0.
The waste water tank is identified by the orange label with the wording “WASTE WATER TANK”.
The tap water tank is identified by the blue label with the wording “TAP WATER TANK”.

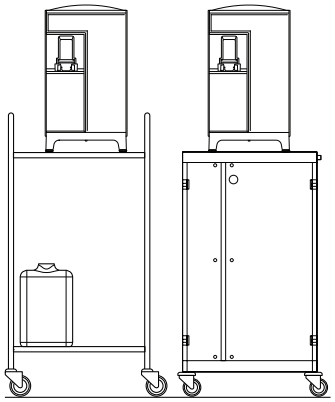
Connection tubes







Tubes and fittings for tap water and waste water.

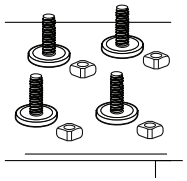


Standard - optional - cart
Ext. dimensions 540 x 540 x 1085 mm (WxDxH)
Load-bearing capacity per shelf: 20kg
Dismantable anodised aluminium cart equipped with 2 shelves, 4 non-marking grey rubber caster wheels (diameter 75 mm) and 2 independent brakes.

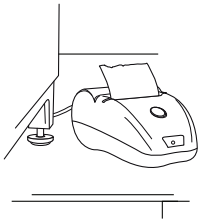
The cart is designed to house and fix Giselle® 2.0 (top shelf) and 2 tap and waste water tanks (lower shelf), so that the equipment can be easily transported.

Premium - optional - cart (equipped with doors and lock)
Ext. dimensions 570 x 585 x 920 mm (WxDxH)
Load-bearing capacity per shelf: 20kg
Anodised aluminium cart with shelves, equipped with doors and lock with key, handle, 4 anti-marking grey rubber caster wheels (diameter 100 mm) and 2 independent brakes.

The cart is designed to house and fix Giselle® 2.0 (top shelf), 2 tap and waste water tanks and other accessories (lower shelf with doors), so that the equipment can be easily transported.



Fixing kit
The kit includes 4 nuts and 4 feet that allow for fixing the machine to the cart shelf and adjusting its levelling.



Thermal printer - optional
Ext. dimensions 85 x 150 x 65 mm (WxDxH)
The thermal printer is supplied with appropriate labels for printing the data relative to the production of Soleva™ (concentration, date and time of production), to be attached to the spray bottle.

Installation

4.1 Unpacking

Verify whether the packaging box contains the following items:
- N° 1 tube kit for water supply and discharge
- N° 1 fixing kit
- N° 1 power suplly cord

Carefully check that the machine has not suffered any damages during transport; if so, notify the supplier.
Check that the following items are available:
- Water supply and discharge tanks
- Spray bottles for producing and applying Soleva™
- Salt cartridges not expired
- Citric acid cartridges for cleaning and maintenance

4.2 Correct positioning

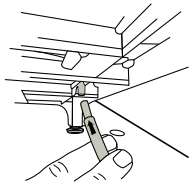
WARNINGS
- Do not install the machine in a room classified at risk of explosion for flammable gas/vapour/powders.
- Assess the adequacy of the place where to install the machine on the basis of the quantity of emitted hydrogen (0.19 l/min during production of the solution).
- Verify that the facility and installation where Giselle® 2.0 is installed conform to the relevant safety regulations.
- Ensure that the equipment is installed in a safe location to prevent uncontrolled access, tampering with the devices or water supply difficulties.
- Install the device in a well ventilated and clean room NFPA497 requires at least 6 air changes per hour.
- Install the device far away (at least 1m) from sources of heat, flames and sparks or other possible sources of ignition.

- Place the device in locations where there are no patients with life-sustaining devices.
- Keep the device in places where there are only devices complying with CEI EN 61326.1 for electromagnetic compatibility.
- Do not position the device near walls or ther objects that could limit the ventilation around the machine. Position it at least 1m far.
- Clean the room in order to avoid presence of dirty into the ventilation slits of the machine.

PRECAUTIONS

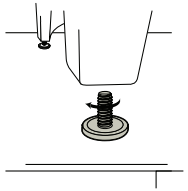
- Transport and handle with care. The device weighs 14 kg. If necessary, use appropriate mechanical aids (for example, manual pallet jacks jacks or forklift trucks). Use suitable personal protection equipment.
- Position the device on a flat and sturdy surface.
- Giselle® 2.0 is designed to operate in a fixed and stable position.

If no cart is available

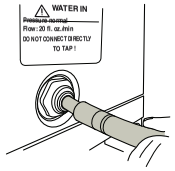


1. Place Giselle® 2.0 on a flat, sturdy surface at about 900-1,000 mm above the floor.

2. Tilt Giselle® 2.0 slightly and connect the drainage tube to the connection marked by the DRAIN label on the lower side of the device.



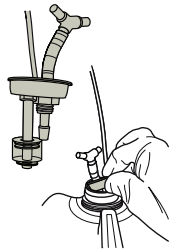
3. Insert the feet of the fixing kit into the appropriate threaded housings then - with the aid of the bubble level on the upper part of Giselle® 2.0 - turn them until the bubble is centred, so as to balance out the surface's irregular features. Giselle® 2.0 must operate in a stable position.



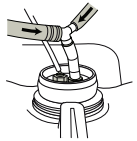
4. Connect the water feed tube to the connection situated on the rear of Giselle® 2.0, identified by the WATER IN label.

5. Connect the discharge tube to the connection situated on the rear of Giselle® 2.0, identified by WATER OUT.

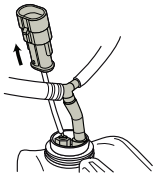
6. Position the tanks beneath the support surface of Giselle® 2.0 at about 900-1,000 mm of distance.



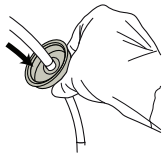
7. Arrange the connector of the discharge tank fixing it to the waste water tank.



8. Connect it to the DRAIN and the DISCHARGE tubes.

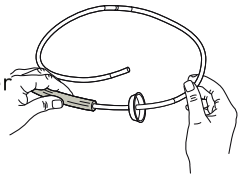


9. Connect the level sensor.

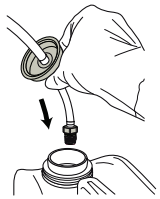


10. Insert the tube for tap water in the hole on the undercap.

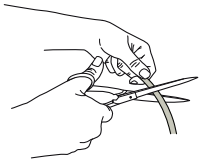
11. Insert the overtube on the water supply tube.



12. Insert the steel terminal on the supply tube and verify whether it reaches the bottom of the Tap Water Tank.

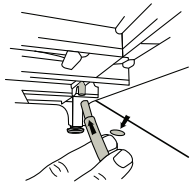


With Premium or basic cart is available



1. Place Giselle® 2.0 on the top shelf of the cart.

2. Cut the drainage tubes (DRAIN) and water discharge and supply tubes (WATER OUT and WATER IN) where indicated by the scissor symbol.



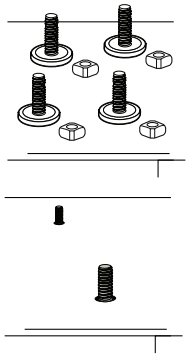
3. Tilt Giselle® 2.0 slightly and connect the drainage tube to the connection marked by the DRAIN label on the lower side of the device, then feed the tube through the large hole on cart's top shelf and on the inner shelf (Premium cart only).

4. Connect the water feed tube to the connection situated on the rear of Giselle® 2.0, identified by the WATER IN label.

5. Connect the discharge tube to the connection situated on the rear of Giselle® 2.0, identified by WATER OUT.

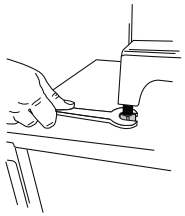
6. Position the tanks on the cart's lower support shelf.

7. Fix Giselle® 2.0 to the cart shelf using the feet and nuts provided, according to the following procedure:



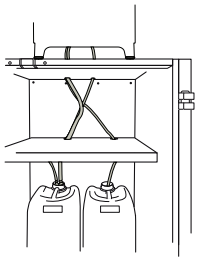
a. Ensure that the threaded part of the feet emerges from the appropriate holes on the support surface.

b. Screw the nuts onto the threading without tightening them.

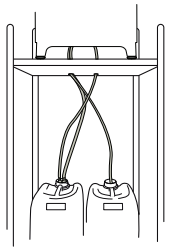


c. Insert the threaded part into the feet of Giselle® 2.0 and tightness firmly.

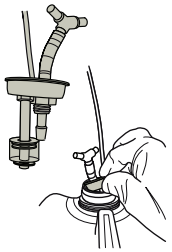
d. Use the bubble level located on the top part of Giselle® 2.0 to adjust the nylon feet, until the bubble is centred: Giselle® 2.0 must operate in a stable position.



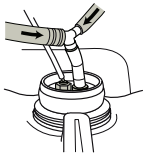
8. If Giselle® 2.0 comes with the Premium cart, feed the "DRAIN" and "WATER OUT" tubes through the large hole and the "Water IN" tube through the small hole on the cart's upper shelf then through the holes on the inner shelf; with the basic cart, simply let the tubes drop below the upper shelf.

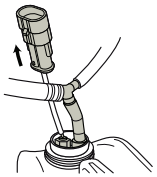


9. Arrange the connector of the discharge tank fixing it to the waste water tank.

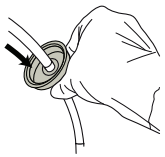


10. Connect it to the DRAIN and the DISCHARGE tubes.



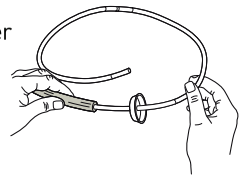


11. Connect the level sensor.

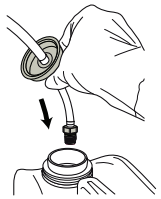


12. Insert the tube for tap water in the hole on the undercap.

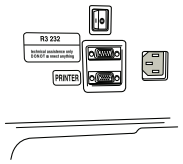
13. Insert the overtube on the water supply tube.



14. Insert the steel terminal on the supply tube and verify whether it reaches the bottom of the Tap Water Tank.



4.3 Electrical connections



WARNINGS

- Verify conformity to all electrical regulations.
  Failure to observe such regulations shall void the Industrie De Nora warranty.
- The device must be properly earthed. Always use an electrical system having an earth connection.
- Do not remove or cut parts of the plug for earthing the power socket.
- Do not deactivate or tamper with the electrical interlocks or lockout mechanisms.
- Connect the device only to a 100-240V ~ 50/60Hz 250 W max. electrical source.
- Do not attempt to repair, replace or modify the power cord.
- Do not pull the cord.
- All the electric cables and connections in use must be free of defects or damages (cuts, abrasions or other elements that may be risk of electrocution).
- If any water sources are nearby, take the necessary precautions to protect the electrical components.

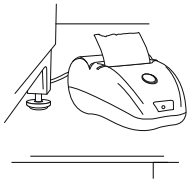
PRECAUTIONS

- If the Industrie De Nora device is subjected to voltage variations exceeding ± 10% or blackouts, electrical storms, incorrect earthing, or harmonic effects, Industrie De Nora S.p.A. recommends installing an uninterruptible power supply (UPS), or a surge arrester in order to protect sensitive electrical components.
- Do not modify the cable connectors as it is a potential risk.
- If an extension is needed, only use certified components.

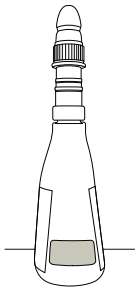
Connect the power cord to the electrical outlet IEC C14.

NOTE: a RS-232 port is available on the right-hand side wall for technical assistance: do not connect anything to it.

4.4 Printer connection (if printer is supplied)



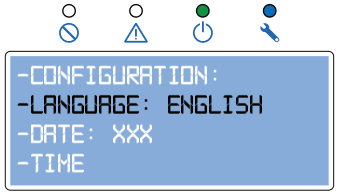
Connect the printer to the "PRINTER" serial port on the right-hand side of Giselle® 2.0.

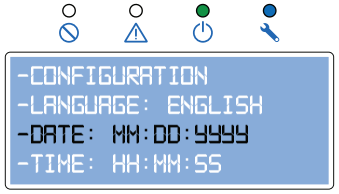


If the printer is purchased subsequently to Giselle® 2.0, install it as indicated in Section **4.7**. Every time a Soleva™ solution is produced, a label will be printed containing the concentration and date of production. The label may applied over the space reserved on the bottle.

4.5 Configuration

Press the ON/OFF switch on the right-hand side of the machine. After the initial start-up, a salt cartridge must be inserted into the machine (Section **5.2**).



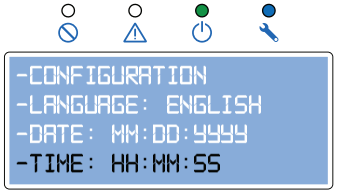


Language/date/time configuration: LANGUAGE
The following 4 options are available: ITALIAN/ ENGLISH/ SPANISH/JAPAN.
When the machine is switched on, the default language is English.

- PRESS THE MENU BUTTON
- Move onto Language using the UP/DOWN arrow buttons
- PRESS START/OK
- Move onto the desired language using the UP/DOWN arrow buttons
- PRESS START/OK
- PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window in the desired language.

Language/date/time configuration: DATE
To set the date:

- PRESS THE MENU BUTTON
- Use the UP/DOWN arrow buttons to highlight the DATE
- CONFIRM BY PRESSING THE START/OK BUTTON
- Use the RIGHT/LEFT arrow buttons to move onto month/day/year
  Use the UP/DOWN arrow buttons to set the day, month and year



CONFIRM BY PRESSING THE START/OK BUTTON

PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.

Language/date/time configuration: TIME

Press the MENU button to set the time

Use the UP/DOWN arrow buttons to highlight the TIME

PRESS THE START/OK BUTTON

Use the RIGHT/LEFT arrow buttons to move onto: HOURS: MINUTES: SECONDS
Move UP/DOWN with the cursor to set the time

CONFIRM BY PRESSING THE START/OK BUTTON

PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.

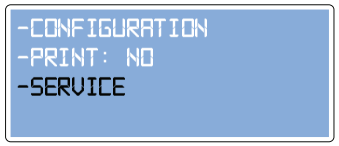
NOTE: only if English or Spanish have been set with the wording am/pm appear alongside the time.

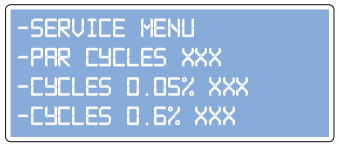
4.6 Configuration of the concentration

Giselle® 2.0 is configured for producing Soleva™ in 2 different concentrations:

Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.05% Free Available Chlorine	GRAY	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

The choice of the concentration can be made before each production cycle.
For limiting the production to a single concentration, the following steps must be performed:





PRESS THE MENU BUTTON


Move down the menu and highlight SERVICE
using the UP/DOWN arrow buttons

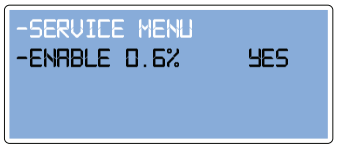
PRESS THE START/OK BUTTON

Enter the password

After entering the password, the adjacent window will appear

Move down the menu using the UP/DOWN arrow buttons and highlight **ENABLE 0.6%**

PRESS START/OK



For **eliminating** the possibility of producing the solution with **0.6%** concentration:

USE THE UP/DOWN ARROW BUTTONS to select NO then confirm by

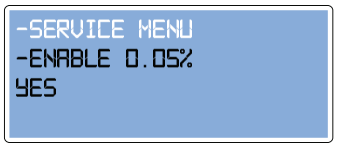
PRESSING THE START/OK BUTTON

For **confirming** the possibility of producing the solution with **0.6%** concentration:

PRESS THE START/OK BUTTON DIRECTLY

Move down the menu using the UP/DOWN arrow buttons and highlight **ENABLE 0.05%**

PRESS START/OK



For **eliminating** the possibility of producing the solution with **0.05%** concentration:

use the UP/DOWN ARROW BUTTONS to select NO then CONFIRM by

PRESSING THE START/OK BUTTON

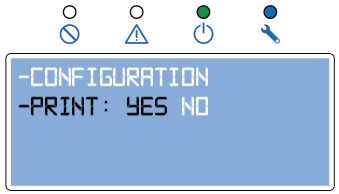
For **confirming** the possibility of producing the solution with **0.05%** concentration:

PRESS THE START/OK BUTTON DIRECTLY

PRESS BACK TWICE to return to the main window.

4.7 Printing configuration

Giselle® 2.0 is automatically configured to operate with an external printer.
If the printer was not purchased, it is necessary to uninstall it by performing the steps indicated below.
It can be reinstalled at any time by performing the steps indicated below.



MENU PRESS THE MENU BUTTON
Use the UP/DOWN arrow buttons to highlight PRINT

START OK PRESS THE START/OK BUTTON
SELECT **YES/NO** using the UP/DOWN arrow buttons

START OK PRESS THE START/OK BUTTON
BACK PRESS BACK: after a few seconds the machine will return to the initial window

Operation

Before operating in this section, carefully read the
"General precautions and warnings" section and wear protective gloves and glasses.

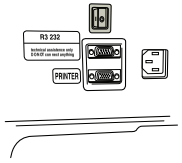


ATTENTION

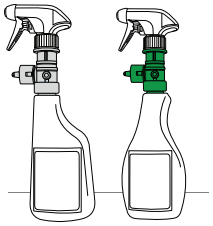
- **Do not move Giselle® 2.0 while it is operating.**
- **If the machine must be moved, switch it off and transport it using the appropriate cart or, if the latter is not available, always keep it in the vertical position. Do not turn it upside down.**
- **Plug is used as disconnect device from AC mains: the socket-outlet shall be installed near the equipment and shall be easily accessible.**

5.1 Start-up operations

Check that the WASTE WATER TANK is not full: its contents must not reach the threshold level.
If this occurs, it must be emptied in conformity to the procedures set forth in the local regulations.



Verify that there is water in the "TAP WATER TANK".
If it is empty, fill it with potable water up to the indicated level.



Check that there are empty spray bottles available:
Gray bottle to prepare low concentration Soleva™ (0.05%)
Green bottle to prepare high concentration Soleva™ (0.6%)
Switch the machine on by pressing the ON/OFF (1/0) button.

Reconfigure LANGUAGE/DATE/TIME/CONCENTRATION/PRINT if necessary. Consult Section **4.5**.

After a few seconds, one of the following windows will appear:

```
-DE NORA NEXT-GISELLE
-MM:DD:YYYY HH:MM:SS
-DOSES NUMBER:  START
XX#: 0.05% / YY: 0.6%
```

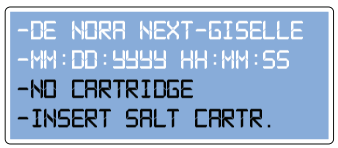
Giselle® 2.0 is ready to produce and indicates the number of available doses.

It is possible to proceed with the production of Soleva™ (Section **5.3**)

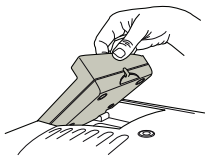
```
-DE NORA NEXT-GISELLE
-MM:DD.:YYYY HH:MM:SS
-DOSES NUMBER: XX
-START CCC%
```

ATTENTION
For every other window, consult Section 7.0 SIGNALS AND ERRORS of the manual.

5.2 Cartridge insertion



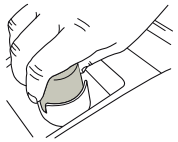
The following window indicates the need to insert a new cartridge.



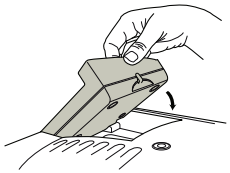
The upper panel is unlocked and can be opened.
If the panel is not opened within about 30 seconds, the safety lock automatically engages and the panel cannot be opened.
If this occurs, simply switch the machine off then on again: the previous window will reappear and the panel can be opened once again.

- Open the panel
- Take one salt cartridge, check the expiration date on the bottom, shake the salt cartridge vigorously
- Remove the cap.
  Empty the cartridge inside the Giselle cartridge compartment.

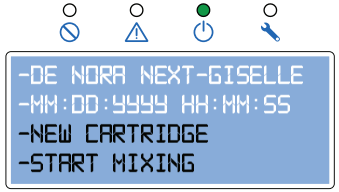
PRECAUTIONS
Only use original salt cartridges supplied by Industrie De Nora S.p.A. and carrying the De Nora Next logo.



Insert the cartridge in the appropriate compartment and press it down.
Tap the bottom of the cartridge to facilitate salt spilling out.
Check the complete emptying of the cartridge and push the salt residues, present in the cartridge compartment , down inside the machine.

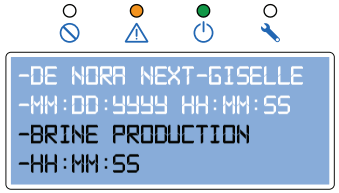


Close the panel.

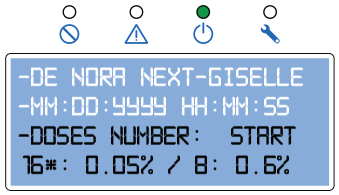


The adjacent window will appear.
START/OK PRESS THE START/OK button.

ATTENTION
In this phase, do not touch the machine and/or the buttons.

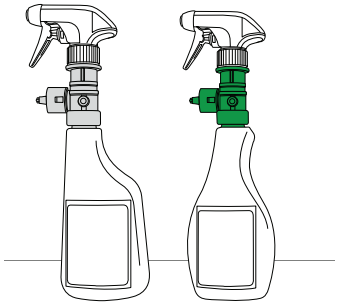


The count down is indicating how much time is required.



At the end the adjacent window will appear and the machine is ready to operate: there are 16 solutions available at 0.05% and 8 solutions at 0.6%.
The asterisk indicates the selected concentration.

Proceed with the preparation of Soleva™ (Section **5.3**) or stop the machine by pressing the ON/OFF (1/0) button.

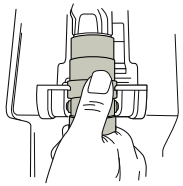


5.3 Production of Soleva™

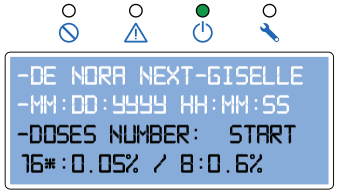
Before starting the production of Soleva™, verify that the start-up operations (Section **5.1**) have been performed and that the cartridge has been inserted, if necessary insert it (Section **5.2**).

Decide the concentration to be produced: 0.05% or 0.6%.

Take:
- the **gray spray bottle** for producing the 0.05% solution
- the **green spray bottle** for producing the 0.6% solution



- Check that the bottle is empty and that the solution it contains is expired
- Empty the bottle or take a empty one
- Clip the spray bottle onto the Giselle® 2.0 fork: push it until the connector on the fork clicks

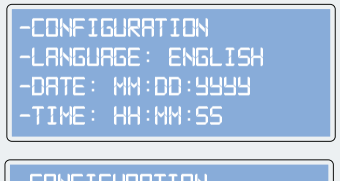


The control panel will visualise a window summarising the number of solutions available for each concentration and on which concentration the machine has been set.

To change the concentration entered on the machine (indicated by the asterisk*), proceed as follows:

ATTENTION
if only one concentration has been set, in order to change it, before it is required to proceed with concentration configuration (Section 4.6).

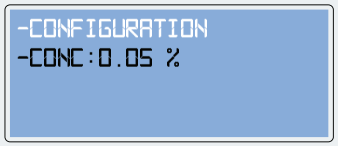
CONCENTRATION CHANGE



MENU PRESS THE MENU BUTTON

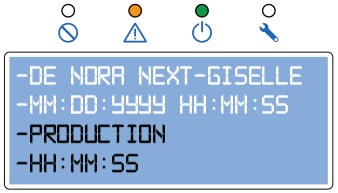
Move down the menu and highlight CONC using the UP/DOWN arrow buttons

START/OK PRESS THE START/OK BUTTON



If necessary, change the concentration using the UP/DOWN arrow buttons Press the START/OK button to confirm the chosen concentration

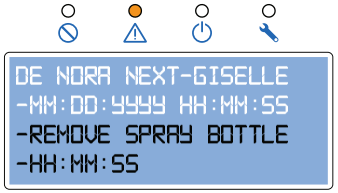
BACK PRESS THE BACK BUTTON: after a few seconds the machine will return to the initial window.



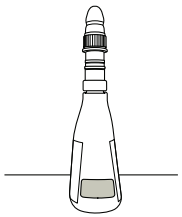
START OK Verify that the machine is set to the desired concentration (indicated by the asterisk *) and PRESS THE START/OK BUTTON.

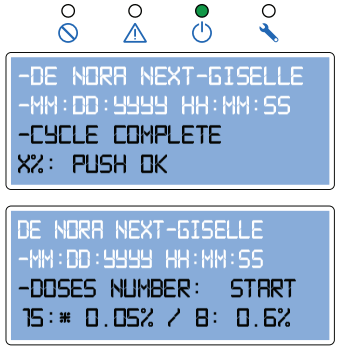
The adjacent window will appear and the count down will indicate how much time is required to complete the production cycle. If the window will not appear, consult the section **7.0** "Signals and Errors".

ATTENTION
During this phase, do not touch the machine/fork/spray bottle and/or buttons! Wait until the machine requests the user to detach the bottle and only the yellow LED flashes.



After the solution has been produced, the adjacent window will appear. It is possible to detach the spray bottle.
The count down is indicating how much time the machine requires to be ready for the next production.





Detach the spray bottle and attach the label to it or, if the printer has not been enabled or it isn't working, write production and expiration date/time on labels supplied for this purpose in permanent ink, as discussed in our user training.

ATTENTION
Remove the spray bottle gently avoiding rough movements up or down.

PRESS THE START/OK BUTTON
The machine will return to the initial window and will visualise the number of solutions still available.

ATTENTION
For every other window, consult Section 7.0 SIGNALS AND ERRORS of the manual.

5.4 Soleva™ direction for use

The Soleva™ solution is produced by Giselle® 2.0 in two different concentrations.

Type of Soleva™ Solution	Concentration of active ingredients	Label and Connector colour	Volume
Low concentration	0.05% Free Available Chlorine	GRAY	0.5 l
High concentration	0.6% Free Available Chlorine	GREEN	0.4 l

Soleva™ solution (0.05%)

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.05% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.05% Solution) from production and kept in sealed bottles. Do not use 48 hours after production time. Refer to the label indicating time of production.
- If the solution is expired dispose it in accordance with local regulation and prepare a new solution (Section 5.3).
- SOLEVA 0.05% solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list refer to the below table).
- Pre-clean heavily soiled surfaces according to the instructions below.
- Spray SOLEVA 0.05% solution directly onto the surface to be sanitized. Thoroughly wet the entire surface. Wait 2 minutes before rinsing with potable water.
- **SOLEVA 0.05% solution has been tested in the presence of 5% organic soil (blood serum) against Staphylococcus aureus (ATCC 6538) on food contact surfaces and Klebsiella pneumoniae (ATCC 4352) on non-food contact surfaces.**

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

Soleva™ solution (0.6%)

- Ready-to Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Include time (day/hour) of SOLEVA 0.6% solution production on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 24 hours (0.6% Solution) from production and kept in sealed bottles. Do not use 24 hours after production time. Refer to the label indicating time of production.

-If the solution is expired dispose it in accordance with local regulation and prepare a new solution (Section 5.3).

- SOLEVA 0.6% solution can be used as a disinfectant on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the below table.)
- **To kill fungi or Clostridium difficile spores, pre-clean surfaces according to the instructions below prior to spraying SOLEVA 0.6% solution.**
- Spray SOLEVA 0.6% solution directly onto the surface to be disinfected. Hold sprayer 6 to 8 inches from the surface. Thoroughly wet the entire surface. Wait 10 minutes before rinsing with potable water. Thoroughly rinse surfaces when steel or coated metals are treated.
- SOLEVA 0.6% kills: **Staphylococcus aureus (ATCC 6538), Pseudomonas aeruginosa ATCC15442, Salmonella enterica ATCC10708, Trichophyton interdigitale ATCC9533, Poliovirus Type 1 (Sabin Strain LSc-2ab), Feline Calicivirus F-9 ATCCVR782, and Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), Clostridium difficile ATCC43598.**

Special Instructions for Cleaning and Decontamination Against HIV and HCV of Surfaces/Objects Soiled with Blood/ Bodily Fluids:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Blood and other body fluids must be thoroughly cleaned from surfaces and objects. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.

Infectious Materials Disposal: Blood and other body fluids should be autoclaved and disposed of according to Federal, State and local regulations for infectious waste disposal.

Special Pre-Cleaning Instructions Prior to Disinfection for Fungi and Clostridium difficile spores

Cleaning Instructions Prior to Disinfection of Heavily Soiled Surfaces or for Clostridium difficile spores:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.

Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before disinfection by application with a clean cloth, mop, and/or sponge saturated with the disinfectant product. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.

Infectious Materials Disposal: Materials used in the cleaning process that may contain feces/wastes are to be disposed of immediately in accordance with local regulations for infectious materials disposal.

PRECAUTIONS

- Handle, store and dispose in accordance to the instructions on the safety sheet.

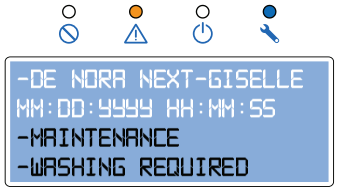
MATERIAL		Soleva™ COMPATIBILITY
Metal	AISI 316 steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI 316L steel	Good. It is advisable to rinse thoroughly after applying the product.
Alloy	Nickel/Titanium	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI 316Ti, EN 1.4571 steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Anodised aluminium	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Epoxy coated metals	Good. It is advisable to rinse thoroughly after applying the product.
Polymer	Fluoroelastomer FKM, FPM (Viton®)	Good
Polymer	Ethylene propylene diene monomer EPDM	Good
Polymer	Chlorosulfonated polyethylene CSM	Excellent
Polymer	Polypropylene PP	Good
Polymer	Polyethylene PE	Good
Polymer	Polycarbonate	Good
Polymer	Polyethylene terephthalate PET	Excellent
Polymer	High-density polyethylene HDPE	Excellent
Polymer	Polyvinylidene fluoride PVDF	Excellent
Polymer	Polyvinyl chloride PVC	Excellent
Polymer	Polytetrafluoroethylene PTFE (Teflon™)	Excellent

MATERIAL		Soleva™ COMPATIBILITY
Polymer	Polyaryletherketone, Polyetheretherketone PAEK, (PEEK™)	Excellent
Polymer	Silicone	Low
Polymer	Polyurethane PUR, PU	Good
Polymer	Polyoxymethylene copolymer POM	Good
Polymer	Polyamide PA6, PA66 (nylon)	Low
Polymer	Polybutylene terephthalate, PBT	Good
Polymer	Nitrile rubber NBR	Good
Polymer	Acrylonitrile butadiene styrene, ABS	Good
Ceramic		Excellent
Glass		Excellent

Maintenance and care

To ensure the machine's optimal operation, a washing with the maintenance cartridge must be regularly performed on Giselle® 2.0.

Moreover, it is advisable to clean Giselle® 2.0 with a damp cloth and to keep the support surface and cart interior dry.

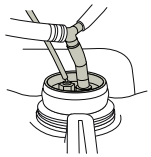


6.1 Washing with maintenance cartridge

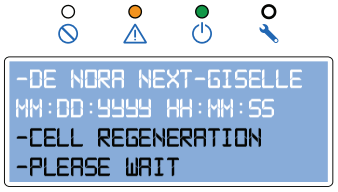
Giselle® 2.0 automatically performs the request of internal piping washing.
The adjacent window appears.

Remove the waste water tank and empty it.

WARNINGS
Handle, store and dispose the waste water as indicated on the label.

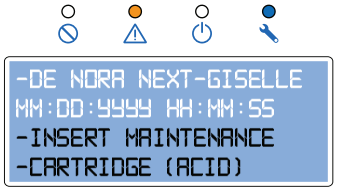


Reconnect the waste water tank.

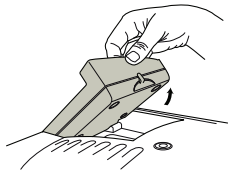


PRESS START/OK
The adjacent window will appear.

ATTENTION
DO NOT TOUCH the machine and/or buttons.

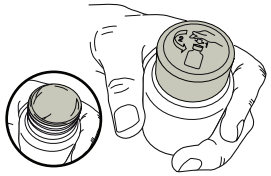


Wait until the adjacent window appears.



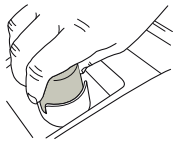
The upper panel is unlocked and can be opened. If the panel is not opened within about 30 seconds, the safety lock automatically engages and the panel cannot be opened; in such a case, simply switch the machine off then on again: the previous window will appear and the panel can be opened once again.

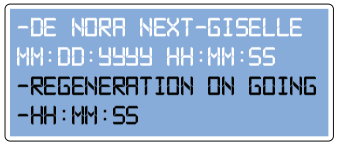
Take the maintenance cartridge. Wear personal protection equipment and remove the cartridge cap.

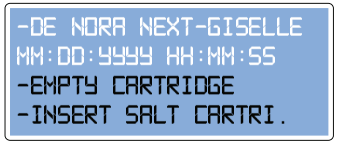


WARNINGS
- Read the label and consult the safety sheet before use.
- Handle, store and dispose in accordance to the instructions on the label and safety sheet.

PRECAUTIONS
- Only use original citric acid cartridges supplied by Industrie De Nora S.p.A.







Insert the cartridge into the appropriate compartment.

Close the panel and PRESS START/OK, the adjacent window will appear.

ATTENTION
DO NOT TOUCH the machine and/or buttons. Time for regeneration cycle is indicated by the count down.

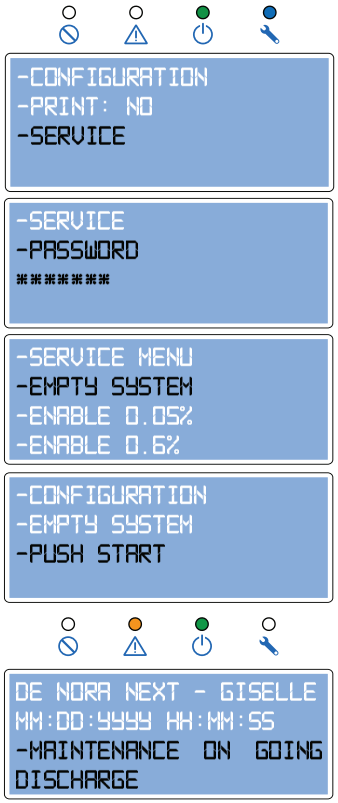
At the end, the adjacent window will appear.

The upper panel will then be unlocked and can be opened. Remove the citric acid cartridge and close it with its own cap.
- Insert a new salt cartridge
- Remove the waste water tank and empty it
- Reconnect the waste water tank
- Proceed as indicated in Section **5.1** of the manual

WARNINGS
Handle, store and dispose the waste water as per local regulation.

6.2 Emptying the system

If Giselle® 2.0 must be moved by transport means (car, train, airplane, ship), the user either must use up the cartridge and sodium hypochlorite solution or otherwise empty the Giselle equipment of any remaining solution.



PRESS THE MENU BUTTON

Move down the menu and highlight SERVICE using the UP/DOWN arrow buttons

Press START/OK

Enter the password

Move down the menu and highlight EMPTY SYSTEM using the UP/DOWN arrow buttons

Press START/OK

PRESS START/OK

The adjacent window will appear.

Wait until Giselle® 2.0 automatically returns to the initial window and the warning "EMPTY CARTRIDGE" will appear. Remove the cartridge, close the upper panel and proceed to package the machine.

Signals and Errors

7.1 Signals

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Wrong cartridge washing HH:MM:SS	GREEN inter-mitt.+ YELLOW ON	The system has detected a salt or acid cartridge but does not identify it as being valid	Non-original cartridge, incorrect use or expired cartridge	1) Wait until the machine automatically completes the wash cycle. When the window "Empty cartridge Change cartridge" appears, it is possible to open the upper panel 2) Open it and remove the cartridge 3) Replace the cartridge with a salt or citric acid cartridge supplied by Industrie De Nora S.p.A. (Section **5.2** or **6.1** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.
No cartridge insert salt cartri.	YELLOW ON	The system does not detect any cartridge	Cartridge not present or not detected	1) Open the upper panel (Section **5.2** of the manual) 2) Insert the new De Nora Next cartridge (Section **5.2** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.
Empty cartridge Insert salt cartri.	YELLOW ON	The system has detected an exhausted cartridge	Cartridge exhausted	1) Open the upper panel (Section **5.2** or **6.1** of the manual) 2) Insert the new De Nora Next salt cartridge (Section **5.2**) If the problem persists, switch the machine off and contact the technical assistance service.
Available 0.05% empty 0.6%	YELLOW ON	The salt in the cartridge is only available for preparing the 0.05% solution		**Proceed with the production of the 0.05% solution:** 1) select the 0.05% solution from the MENU (Section **5.3** of the manual) 2) press START/OK **Or empty the system (Section 6.2 of the manual)**
Maintenance washing required	YELLOW ON + BLUE ON	The system requests a wash cycle	Regular maintenance requested by the system	Proceed with the wash cycle (Section **6.1** of the manual)

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Maintenance on going discharge	GREEN intermitt.+ YELLOW ON	The system has detected an anomaly and will empty and rinse out the cell	Brine supply not correct	1) Wait until the machine automatically completes the wash cycle.
No production select concentration	YELLOW ON	The system detects the impossibility of proceeding with the production of any solution	The production of both the 0.05% and 0.6% solution has been disabled	Configure the concentration (Section **4.6** of the manual) If the problem persists, switch the machine off and contact the technical assistance service.

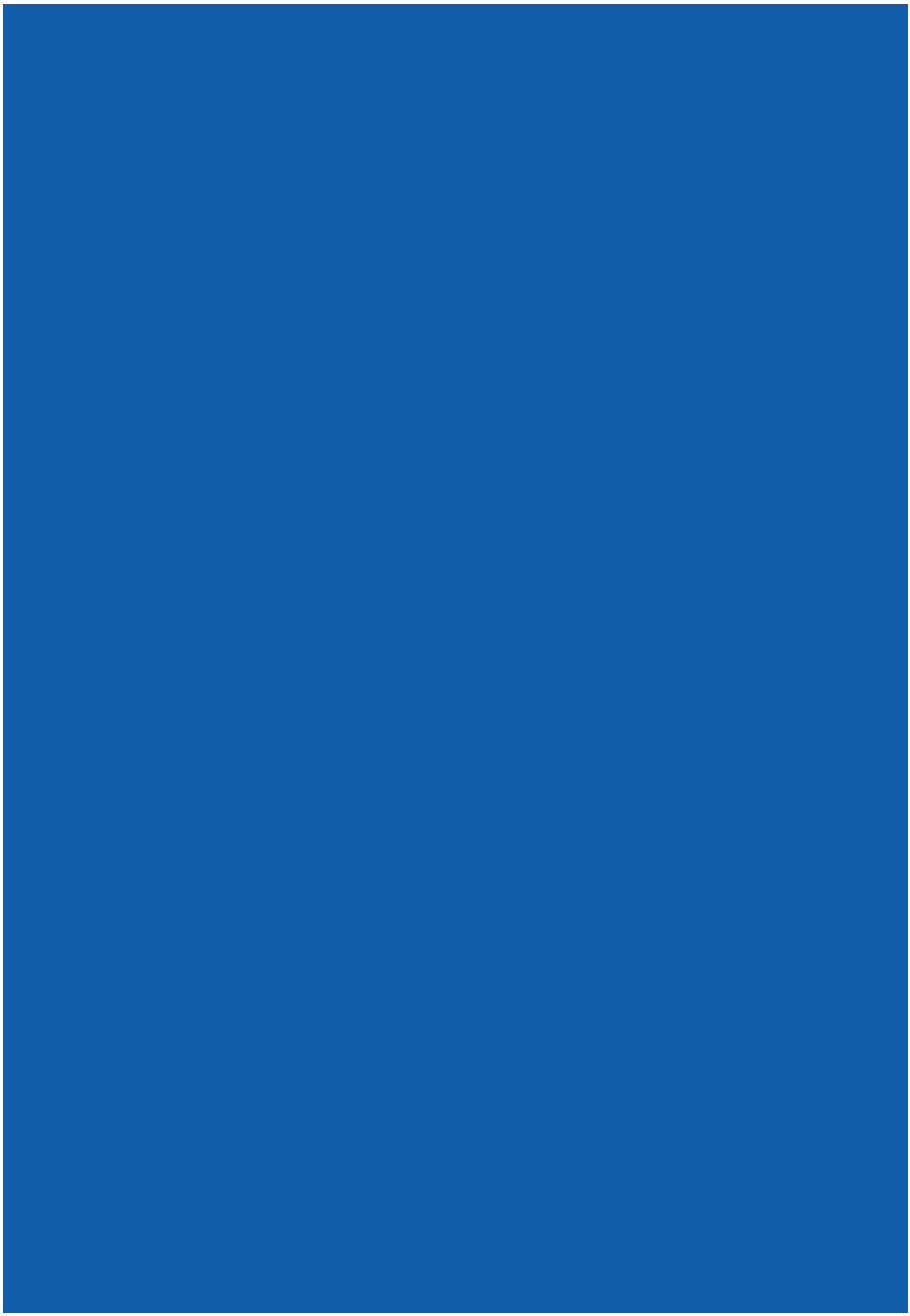
7.2 Errors

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: High temperature Unloading solution	RED intermitt.	The system signals that the cell temperature is high		1) Wait for the solution to be discharged until the successive window appears
Error: High temperature Waiting lower temp	RED ON	The system has detected high temperature and is waiting for it to fall below the threshold value		1) Wait until the successive window appears: ¨Temperature OK Press OK¨ green LED 2) Press START/OK If the problem persists, switch the machine off, contact the technical assistance service and report error **E001**
Error: Production Solution Discharge	RED intermitt.	The system has detected some problems that hamper the production of the solution		1) Wait for the solution to be discharged until the successive window appears
Error: Production **E005**	RED ON	The system has detected some problems that hamper the production of the solution		1)Turn off the machine, turn it on again and wait for home screen. 2)Proceed with emptying of the system (section 6.2 of this manual). 3) When the system requires to insert a new cartridge, open the top cover, remove the cartridge and check the cleaning of the louvers. Bring down the salt present on the louvers. 4)Insert a new cartridge of salt : be sure to empty the cartridge completely and make sure that the salt does not stop on the louvers (section 5.2 of this manual). If the problem persists, contact the technical assistance service and report error E005
Error: Production **E007**	RED ON	The system has detected some problems that hamper the production of the solution		1) Switch the machine off then on again If the problem persists, contact the technical assistance service and report error E007
Error: Water mix **E008**	RED ON	The system has detected some problems that hamper the production of the solution		1) Switch the machine off 2) Contact the technical assistance service and report error E008

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: Spray bottle load **E009**	RED ON	The system does not manage to transfer the Soleva™ solution to the bottle	The bottle was either touched or removed while Soleva™ was being produced	1) Switch the machine off 2) If necessary, remove the bottle and empty it 3) Switch the machine on again and wait until the initial window reappears 4) Clip on the bottle on and proceed with the production of the solution If the problem persists, switch the machine off, contact the technical assistance service and report error E009
Error: Water Loading **E010**	RED ON	The system does not manage to load water from the tank	The water tank is empty or the water supply tube is not positioned correctly	1) Verify whether there is any water in the tap water tank and that the tube reaches the bottom 2) Fill the tap water tank up to the blue level indicated, while ensuring that the tube reaches the bottom 3) Switch the machine off then on again and wait until the initial window reappears If the problem persists, switch the machine off, contact the technical assistance service and report error E010
Error: Water drainage **E011**	RED ON	The system does not manage to discharge the washing water into the discharge tank	The water discharge tank is full	1) Discharge the waste water tank and then reconnect it to the machine 2) Switch the machine off then on again If the problem persists, switch the machine off, contact the technical assistance service and report error E011
Error: Watch battery **E012**	RED ON	The system signals that the clock battery is exhausted		1) Contact the technical assistance service and report error E012 2) Press ok, the machine will go on the home screen 3) Check date and time, if they aren't correct change them (sec. 4.5 of this manual) 4) Proceed with the regular use of the machine waiting for technical intervention
Error: High temperature **E013**	RED ON	The system signals that the machine is not functioning properly and that the temperature is too high		1) Switch the machine off 2) Contact the technical assistance service and report error E013

DISPLAY	LED	DESCRIPTION	CAUSE	REMEDIES
Error: Hydrogen vent **E014**	RED ON	The system signals that the machine is not functioning properly and that the fan is blocked		1) Switch the machine off 2) Contact the technical assistance service and report error E014
Error: RFID reader **E016**	RED ON	The system signals a malfunction concerning the RFID control system		1) Swith the machine off 2) Contact the technical assistance service and report error E016
Error: Printer **E017**	RED ON	The system signals that the printer is not able to print	The printer is not connected, is not installed or it malfunctions	**If a printer is available:** 1) Verify that the printer is connected; if not, connect it 2) Verify that the labels are in the printer and load them 3) Verify that the printer is installed; if not, install it (Section **4.7**) 4) Verify that the labels are not rolled. Possibly unfold the roll and close the top cover of the printer. 5) Switch the machine off then on again Printing will be possible with the successive production cycle; for the current production cycle, use the manual label. If the problem persists, switch the machine off, contact the technical assistance service and report error E017 **If no printer is available:** 1) Press BACK 2) Withdraw the bottle and wait until the production cycle ends 3) At the end, verify that the printer has not been installed, consult Section **4.7** and select NO

NOTES



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ClorTec®-SD Series On-Site Surface Disinfectant Generator

Installation, Operation, and Maintenance Manual

13 November, 2020

De Nora Water Technologies maintains a constant product improvement program that may affect design and/or specifications. The company reserves the right to make these changes without prior notice or liability. Portions of the ClorTec®-SD Generators are covered by U.S. Patent

Customer Service

Toll free Product/Tech Support

T: 1.800-646-9426, option 2

Tech Support

C: 1.505-377-5879

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Web Support

https://info.denora.com/contact-miox-service-1

International distributors and sales agents located worldwide

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INTRODUCTION AND OVERVIEW

This manual is intended to provide basic installation, operation, and maintenance guidelines for the operator of the ClorTec-SD on-site disinfectant generator (OSDG). Variations between model types may cause the images in this manual to not directly reflect the setup of every unit.

This manual describes the basic operation, installation, maintenance, and troubleshooting of the ClorTec-SD system. For instructions on the preparation, use, and application of the Disinfectant Solution produced by the OSDG, refer to the **Supplemental: Disinfectant and Sanitizing Directions for Use** document included in the Documentation Kit.

Properly operating and maintaining the system will increase cell life and overall system performance. If you encounter problems or have questions not covered in this manual, please contact De Nora WT Service at 1-800-646-9426.

Regulatory Standards

U. S. Environmental Protection Agency (US EPA)

EPA Establishment Number: 48482-TX-001

EPA regulations – 40 CFR, Part 152.500

System Description

The ClorTec-SD system is an on-site chemical generator that creates a disinfection solution from water, salt, and electricity. When producing disinfectant, the ClorTec-SD system is automatically controlled by a pair of level switches inside the storage tank.

The Solution is a hypochlorite-based one-step disinfectant with efficacy against labeled bacteria, fungi, viruses, and spores.

System Illustration and Component Descriptions

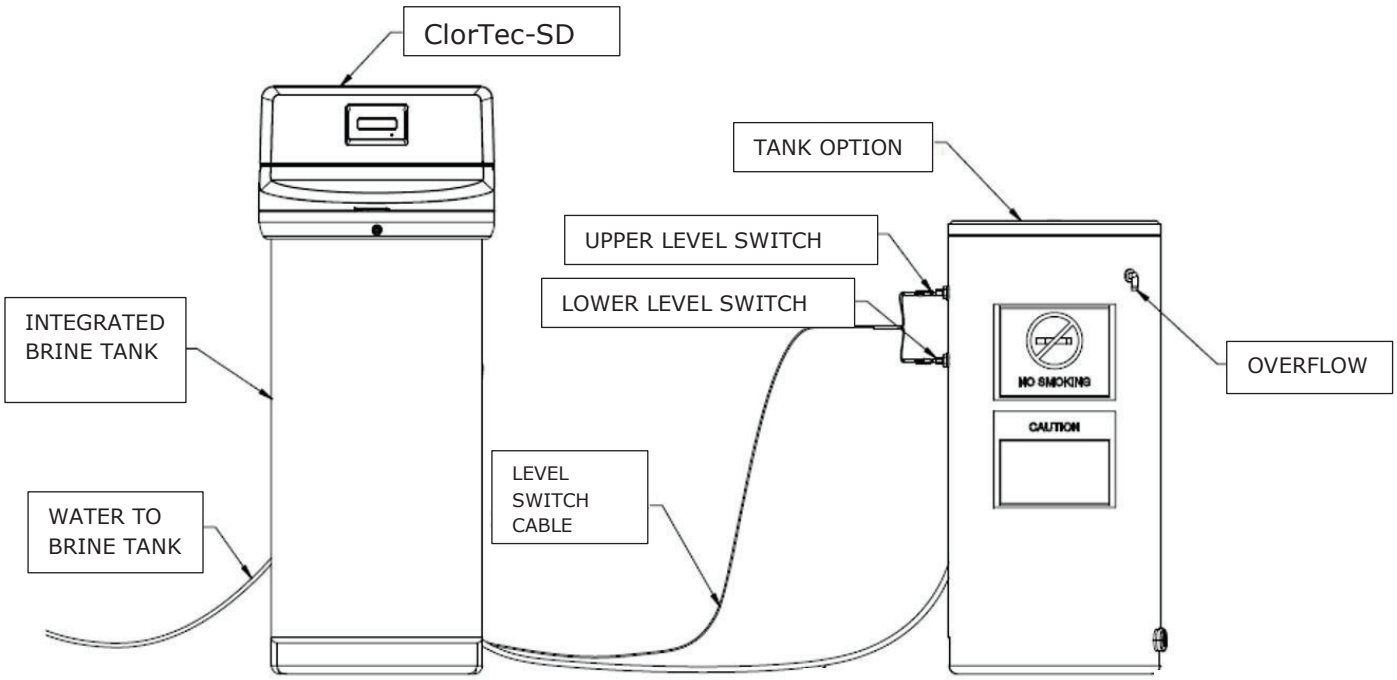

Figure 1 Generic diagram of a ClorTec-SD OSDG with Integrated Brine Tank and storage tank.

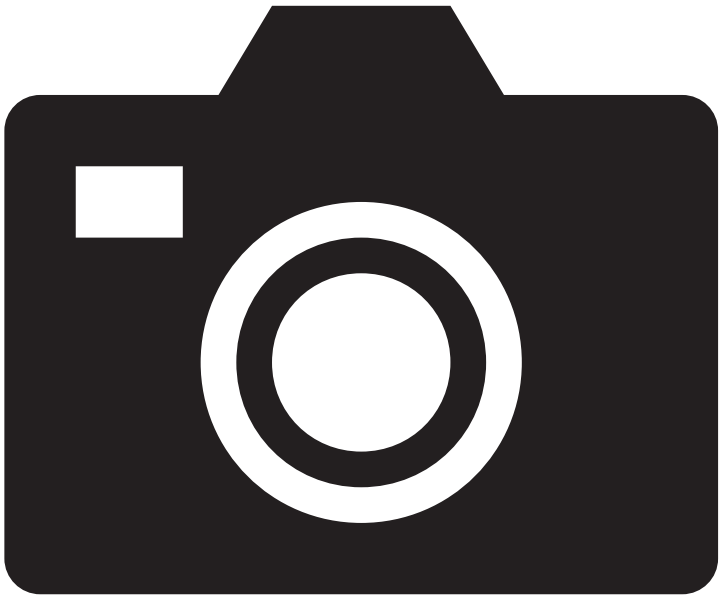

Figure 2 PLACEHOLDER: ClorTec-SD OSDG Head-Unit With Labeled Components (Plastic Cover Removed)

ClorTec-SD OSDG
On-site Disinfectant generator (OSDG).

Water supply
Fresh water supply for the OSDG. Runs through supplied Inline Pressure-Reducer assembly before connecting to OSDG.

Brine supply
Low-pressure supply of saturated brine to the OSDG.

Storage Tank
Vented solution storage tank for OSDG output.

Hydrogen Vent
Venting system for solution storage tank for venting potentially dangerous hydrogen gas. Refer to the **HYDROGEN SAFETY CHECKLIST** included in the Documentation Kit to determine the venting requirements for your installation location.

Level Switch Assembly
Assembly of two level switches and a level switch cable. The level switches control the OSDG when installed in the solution tank. The 15' cable connects the level switches, and pressure switch to the OSDG. See Figure 2 for details. Note: *The level switches are orientation-sensitive and must be installed with the arrow pointing upward in order to function properly.*

System Cover
A rigid plastic housing that covers and protects the key components of the ClorTec-SD OSDG.

Touch Display
Interactive Touch-Display that allows the user to interact with the ClorTec-SD to view system parameters and change various settings.

Electrical Enclosure
An actively-cooled aluminum box housing the controller, power supplies and other electronic components of the ClorTec-SD OSDG System.

The Electrical Enclosure contains high-voltage circuits and components and should not be opened by un-trained persons. Contact Customer Support before attempting to open or repair the Electrical Enclosure. Failure to do so may void system warranties.

Brine Pump
An automated peristaltic pump which controls the system's brine flowrate.

Water Pump
An automated peristaltic pump which controls the overall system flowrate.

ClorTec-SD Electrolytic Cell
A proprietary electrolytic cell manufactured by De Nora Water Technologies. ClorTec-SD OSDGs use two cells.

Thermowells
In-line temperature sensors used to evaluate operational efficiency of the system.

Electrical Back Panel
All of the unit's electrical connections, including the power switch, system fuse, IEC power receptacle, and connectors for the Level Switch Assembly, USB, and an Ethernet cable.

Plumbing I/O Panel
3 barb fittings for connecting the water supply, brine supply and solution outlet.

Hydrogen Vent Kit
Kit of parts consisting of a tank inlet, drop tube assembly, warning labels and a vent strainer. Refer to the Solution Tank Manual for details.

Inline Pressure Reducer Kit
Assembly to reduce line pressure to an appropriate pressure for the OSDG. Optionally, the

Kit may include an optional Pressure-Switch. This switch will shut the unit down to prevent damage if the system loses feed-water pressure. The kit has a female ¾" NPT inlet connection. See Appendices for details.

Integrated Brine Tank
Integrated tank with automatic brine generation system designed specifically for the ClorTec-SD. See Integrated Brine Tank Manual for installation and operation.

NOTE: For optional items not listed above see the appendices and the additional documents included with the ClorTec-SD Documentation Kit.

INSTALLATION AND STARTUP

The ClorTec-SD OSDG has been factory tested and must be properly installed per the instructions in this manual.

Safety

SAFETY PRECAUTIONS AND WARNINGS

Ensure that the facility and the installation are in conformance with all codes and standards.

*Please refer to the **Hydrogen Ventilation Checklist** and/or your local authority having jurisdiction for more information.*

A liquid barrier system is mandatory. Ensure that all hydrogen vent lines slope towards the Solution Storage tank.

Ensure that no valves, drop legs, or P-traps are in the hydrogen vent lines. Do NOT cross connect vent lines.

Ensure that brine and Solution tanks are labeled properly.

Disconnect power before working on the system. Do not reconnect the power to the rear panel until installation is complete.

All ClorTec-SD OSDG systems require a good earth ground. A neutral is not a substitute for a proper earth ground. Electrical wiring to all ClorTec-SD OSDG systems should be performed by a certified electrician.

In the ClorTec-SD Head Unit Box

1) ClorTec-SD OSDG
2) ClorTec-SD Installation, Operation, and Maintenance Manual
3) ClorTec-SD Supplemental: Disinfectant Directions for Use
4) Additional Documentation including:
    a. Feed water quality guidelines
    b. Salt quality guidelines
    c. Hydrogen Safety Checklist
    d. Registration Card
    e. Spray bottle labels
5) Power Cord
6) Standard Parts Kit
    a. Level Switch Assembly (comes pre-installed if the Solution Storage Tank was ordered from De Nora Water Technologies)
    b. Tubing and hose clamps
7) Inline Pressure Reducer
8) Special Tools to aid with setup
    a. Allen Wrench
    b. Pliers

In the Integrated Brine Tank Box

1) 40-gallon Integrated brine tank
2) Integrated Brine Tank Installation Manual.

In the Solution/Disinfectant Storage Tank Box (if ordered)

1) 27-gallon Solution/Disinfectant Storage Tank (27 gallon is standard, size may vary depending on your actual setup and use rate.
2) Level switch assembly (comes pre-installed if the Storage Tank was ordered from De Nora Water Technologies).
3) Hydrogen Vent Kit (comes partially pre-installed if Disinfectant Storage Tank was ordered from De Nora Water Technologies).
4) Solution Tank Installation Manual.

In the Water Softener Box

1) Point-of-use RO system for water softening.
2) RO System Installation Manual.

What you need

To install the ClorTec-SD OSDG System, you need:

1) ClorTec-SD OSDG
2) 5 foot by 5-foot indoor environment with ventilation (see **Hydrogen Venting Checklist**)
3) 110-240 VAC 10A circuit with standard grounded wall plug (GFCI recommended)
4) Saturated Brine Supply (see **Salt Quality Guidelines** for salt specifications)
5) Fresh Water Supply (see **Appendices** for Water Quality Guidelines)
6) Solution Storage Tank with Hydrogen Venting (see **Solution Storage Tank Manual** for additional information)
7) Tubing and hose clamps (provided with OSDG)
8) Level Switch Assembly (provided with OSDG)
9) Inline Pressure Reducer
10) Power Cord (provided with OSDG)

Tools for install

The ClorTec-SD can be installed without any tools, although it is recommended to use a pair of pliers to tighten the hose clamps on the plumbing I/O panel.

Refer to the **Integrated Brine Tank Manual** for tools needed to install the Integrated Brine Tank.

Refer to the **Solution Storage Tank Manual** for tools needed to install the Level Switch Assembly.

Installation Location Requirements

The ClorTec-SD OSDG must be installed indoors on a flat level surface approximately 5 feet long by 5 feet wide (1.52m by 1.52m). The ambient air temperature at the installation location must be between 40°F (5°C) and 110°F (43°C). Additional space may be required for the water, brine, and Solution tanks. De Nora Water Technologies recommends placing the OSDG and tank near an available drain for ease of draining the tank or in case of minor overflows. Additionally, De Nora Water Technologies recommends installing the system near a well ventilated space or external wall for ease of hydrogen venting as described in the **Hydrogen Ventilation Requirements Checklist**.

> ***NOTE: Failure of the system that can be traced to improper temperature conditions is not covered under the System warranty.***

Connections

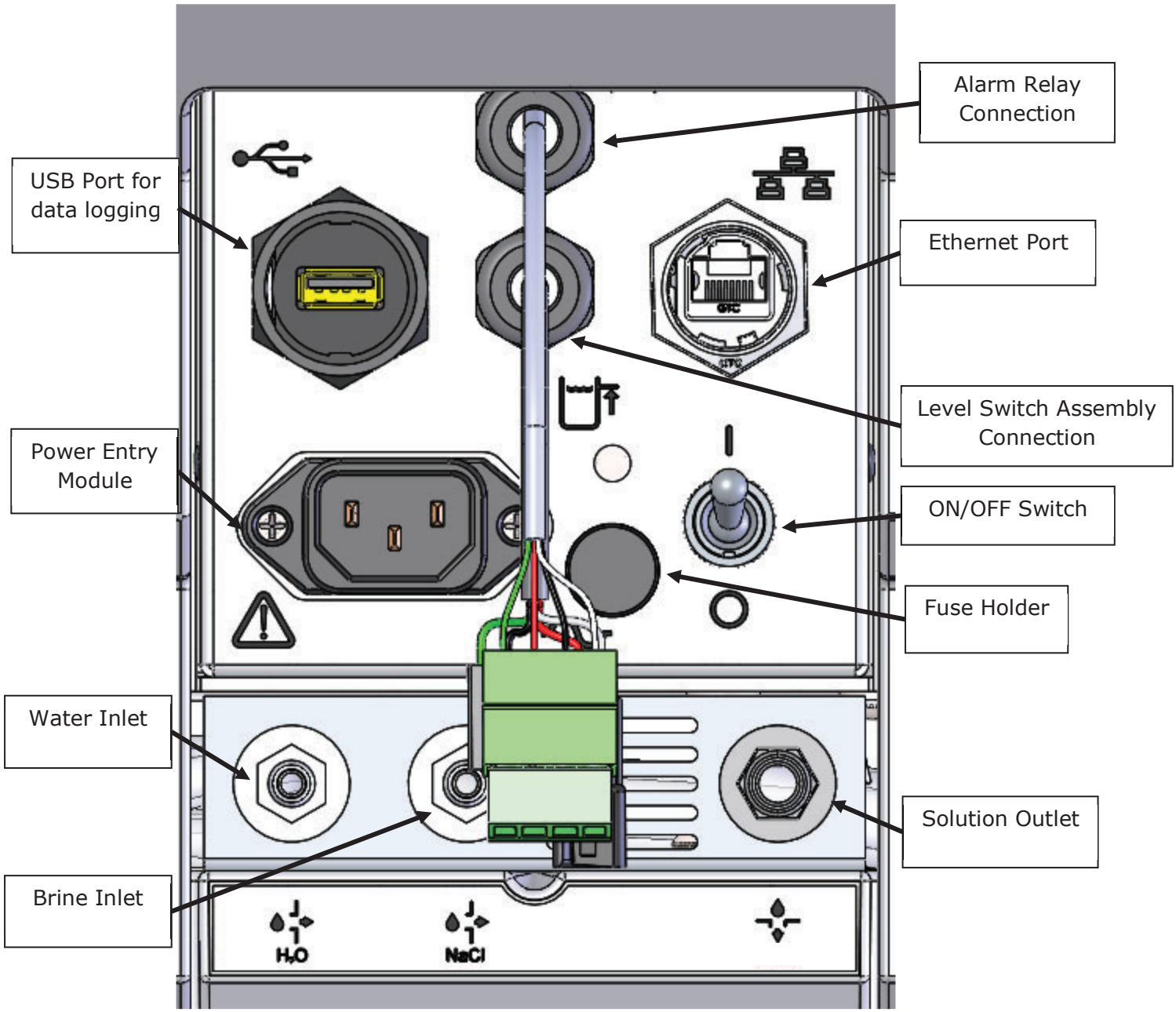

Figure 3: ClorTec-SD OSDG I/O panels with labeled components

Plumbing

The ClorTec-SD has three barbed plumbing connections on the plumbing I/O panel: water inlet, brine in, and solution out. The ¼" barbed water inlet must be connected to the appropriate location on the included Inline Pressure Reducer Kit. The ¼" barbed brine inlet must be connected to the **Integrated Brine Tank** which supplies the OSDH with an unpressurized saturated brine supply.

When using the integrated brine tank with the ClorTec-SD OSDG, the water and brine inlets will connect to the labeled water and brine outlets on the integrated brine/water tank. Please refer to the **Integrated Brine Tank Manual** for additional details.

The 3/8" barbed solution outlet must be connected to a solution storage tank with proper hydrogen venting as described in the **Hydrogen Ventilation Requirements Checklist**. All barb fittings must be secured with the included hose clamps.

Safety

Only supply the ClorTec-SD *OSDG brine (fully-saturated salt water) and fresh water. Feeding other solutions instead of brine and water can cause severe damage to the equipment or operator. Follow* ***Salt Guidelines*** *for salt quality used in operating on-site generation equipment.*

Electrical

The ClorTec-SD OSDG requires only power, pressure, and level switch connections for normal operation. The included power cord connects the system to 110-120 VAC and should be connected to the standard IEC receptacle on the electrical back panel. For a 220-240 VAC connection, replace the supplied power cord with a 10A rated 220VAC IEC Cable or modify the supplied power cord plug to adapt to a 220VAC receptacle.

All ClorTec-SD OSDG systems ship with a pre-installed fuse on the system back-panel. A spare fuse is also included with the unit.

> ***NOTE: Failure of the system that can be traced to a poor power source is not covered under the System warranty.***

The level switches should be pre-installed in the solution tank as shown in the **GA drawing** or **Solution Storage Tank Manual** if the storage tank was supplied by De Nora. If using another tank, the level switches should be installed in the use-supplied tank as described in the **GA drawing** or **Solution Storage Tank Manual**. The level switch cable is keyed so there is only one orientation that matches the connectors on the back panel. Without level switches plugged in, the OSDG will not operate and instead will remain in 'Standby' mode.

Alarm Relay

The ClorTec-SD OSDG is equipped with an alarm relay. This relay is tripped whenever the system encounters a fault and can be used to send a signal to various forms of external alarm systems (audible, plant status, etc.) depending on the user's preference and site constraints. Contact Customer Support for additional information about this feature.

Safety

All ClorTec-SD systems require a good earth ground. A neutral is not an acceptable substitute for an earth ground. Electrical wiring to all ClorTec-SD units should be wired on a separate circuit from other power devices, like pumps, heaters, etc. De Nora Water Technologies cannot be held responsible for systems wired improperly that do not meet UL or National Electrical Code (NEC) requirements. If the system is improperly grounded, the warranty is void. If a local code requires a GFI (Ground Fault Interrupter) circuit breaker, it is the responsibility of the customer to install the GFI to meet local code requirements.

Installing the ClorTec-SD

1) Unpack The Boxes
   Unpack the ClorTec-SD OSDG and all additional included components.

2) Position the OSDG
   Place the ClorTec-SD OSDG on the integrated brine tank by following instructions in the **Integrated Brine Tank Manual.**

3) Install Inline Pressure Reducer & Switch Assembly
   Following the instructions in the **Appendices** for installing the Inline Pressure Reducer, connect the water source to the water inlet of the OSDG through the Inline Pressure Reducer. Plug-in the pressure switch assembly into the UPPER level switch connection on the back of the OSDG

4) Install Water Conditioning System
   depending on site water quality, it may be necessary to install additional water conditioning equipment. Refer to the Water Quality Specifications for the ClorTec-SD and Contact Sales/Customer Service for water conditioning options.

   Failure to provide water within proper specifications will void System Warranties.

5) Connect Water Source to Brine Generator
   Connect pressurized water source to the integrated brine tank using the 1/4" diameter LDPE tubing. Secure with hose clamps. Leave valves closed.

6) Connect Water & Brine Inputs to OSDG
   Use the smaller diameter clear vinyl tubing to connect the water and brine feeds to the OSDG. Secure with hose clamps. Leave valves closed.

7) Load Salt
   Load the brine tank with salt. If Integrated Brine Tank was ordered from De Nora Water Technologies, follow instructions in the **Integrated Brine Tank Manual**.

   NOTE: Only use salt that meets or exceeds the salt quality specifications in the De Nora Salt Guidelines.

8) Connect Solution Tank
   Connect the solution outlet on the OSDG to the storage tank using the larger diameter clear vinyl tubing and hose clamps. If Storage Tank was ordered from De

Nora Water Technologies, follow the installation instructions in the **Solution Storage Tank Manual**.

9) Install Level Switch

If using a De Nora supplied solution storage tank, the level switches will be pre-installed. Plug one end of the level switch assembly cable into the electrical I/O panel of the OSDG and the other end of the cable to the level switch connectors on the solution storage tank. Note that the cable is keyed on both ends to minimize error in setup. Ensure proper orientation, if the connectors do not connect easily, confirm proper orientation and try again. Never force the connectors to avoid damage.

If using a tank not provided by De Nora Water Technologies, or need additional installation guidance for the supplied tank, follow installation instructions in the **Solution Storage Tank Manual** for the Level Switch Assembly installation.

NOTE: Solution tank level switches must be installed correctly for the system to operate.

10) Hydrogen Venting

Install hydrogen venting in the solution tank. Hydrogen must be vented outdoors. Follow the Hydrogen Vent Kit instructions in the **Solution Storage Tank Manual** and **Hydrogen Ventilation Requirements Checklist**.

11) Attached Power Cord

Attach power cord to IEC on the back panel of OSDG. Connect to 220-240 VAC. For a 220-240 VAC connection, replace the supplied power cord with a 10A rated 220VAC IEC Cable (220VAC cable not provided by De Nora Water Technologies).

12) Open Valves on OSDG

Open the water and brine feed valves on the OSDG.

13) Open Water Source Valve

Open the facility water source valve.

14) Brine Saturation

Wait 30 minutes to 1 hour to allow brine to fully saturate before turning system on.

15) Turn System On

Turn on the unit by switching the power switch on the back panel. Follow the First-Time Startup procedure to prime the system if the system has never been run or was drained for any reason.

First-Time Startup

The first time the ClorTec-SD is started (or if the brine and water supply lines lose prime for any reason such as the system was drained/moved), it may be necessary to prime the brine and water lines by manually controlling the pumps. This can be done using the following procedure:

1) Turn System On
   Turn the system power on by flipping the toggle switch on the back of the unit
2) Place System in STOP mode
   Once the system program has loaded, ensure the START/STOP Button is toggled such that they system reads "STOP MODE" on the upper-left corner of the MAIN SCREEN. This is also indicated by the START/STOP Button on the bottom right corner of the screen indicating a GREEN "Push-to-Start" Button.
3) Navigate to DIAGNOSTICS Page
   With the unit in STOP mode, navigate the following sequence of screens:
   MAIN SCREEN →MENU → DIAGNOSTICS
4) Prime Pumps Using DIAGNOSTICS Controls
   Once on the DIAGNOSTICS Page, utilize the on-screen PRIME H2O and PRIME BRINE buttons to manually enable the water and brine pumps and allow the system to prime.

   NOTE: Visually verify that water and brine are being delivered to the plumbing I/O panel on the back of the OSDG.

Perform this process until both water and brine are successfully delivered to the plumbing I/O panel.

Startup Tips

If the startup does not go smoothly the first time, there are several items to check if any issues arise:

Brine saturation level

Unsaturated brine may cause the system to fault on initial startup. Adding more salt to the brine tank and waiting approximately 30 minutes before restarting the system should resolve this problem as it provides extra time for the salt to dissolve properly into the water in the bottom of the brine tank and reach brine saturation.

Plumbing length

With some installations where the OSDG and the disinfectant/solution tank are located far apart from each other, the system must go through an extensive priming-cycle before liquid reaches the unit. It is recommended to minimize the length of hose in between the water and brine supplies and the OSDG whenever possible.

NOTE: Assure there are no kinks or pinches or leaks in the tubing.

Plumbing connections

The pumps in the ClorTec-SD are self-priming, but they rely on sealed tube and hose connections. If any of the connections are leaking, air may get into the tubing and the system may not prime, or stay primed, properly. If this is observed, ensure that the retaining clamps are properly tightened according to the instructions.

Level/Pressure Switch Assembly Installation

Check that the pressure and level switches are installed appropriately. Follow the instructions in the **Solution Storage Tank Manual** to troubleshoot the level switches for orientation, and proper wiring. If installed upside-down, the unit will go through a priming cycle and immediately enter standby as it will think the disinfectant/solution tank is full. This will be unlikely if the solution storage tank was purchased from De Nora as the level switches will be pre-installed, however, if you are using another tank, or have removed and re-installed the level switches, it is possible that to install them upside-down. Take note of the guidance arrow on the back of the level switch near where the cable connects to the switch and ensure it is pointing up. Once the switches are oriented properly, restart the system.

OPERATION AND MAINTENANCE

Normal Operation

In normal operation, the ClorTec-SD OSDG automatically enters 'Run' and 'Standby' modes based on the solution level in the solution tank. The ClorTec-SD OSDG will also automatically enter a 'Cleaning' mode on the first startup after a predefined number of operating cell hours.

Safety

The disinfectant generated by the OSDG should be used according to the recommended use instructions, including concentration confirmation as well as timing. Refer to the ***ClorTec-SD Supplemental Use Instruction*** *included in the Documentation Kit for guidance on disinfectant storage, use, etc.*

Operation Modes

The Controller for the ClorTec-SD is programed to facilitate various operating "modes", each mode coincides with a different behavior routine and each is triggered based on various inputs to the system such as tank level state, system run hours, and various FAULT conditions that are monitored by the sensors installed on the OSDG. This section provides a brief description of these operating modes.

STOP Mode

The system is "disabled" via the HMI START/STOP Button. While in this state, the system will not attempt to enter RUN Mode without manually enabling the START/STOP button. This mode also allows for priming and basic manual control of the pumps, etc. on the system through DIAGNOSTIC Mode.

Standby Mode

The system is "waiting" for a RUN condition and will not generate nor attempt to generate disinfectant solution while in this mode. A common example is that the disinfectant/solution tank is full, which tells the unit to wait in standby until there is room in the tank.

RUN Mode

The system is within the normal operating window for disinfectant solution generation and is running correctly.

Startup/Shutdown Modes

During the startup and shutdown modes of operation, the system flushes the lines and cell with water to remove any excess salt that may crystalize and clog the plumbing while the system is not in use. After the system enters this mode, it will automatically enter Normal Operation or Standby after the flush is performed depending on if this was initiated during startup or shutdown, respectively.

NOTE: *Excessive startups/shutdowns may dilute the Solution in the storage tank due to the excess water being added to the tank. Always verify concentration before using solution after several start and stops or if there is ever a question about efficacy.*

FAULT Mode

The system has encountered an abnormality in the operating parameters and is either attempting to resolve it automatically or needs manual resetting and inspection. The ClorTec-SD system is equipped standard with an alarm circuit that will close a contact in the event of a fault requiring inspection (HARD Fault). Refer to the Fault Conditions sub-section of the Troubleshooting guide included in this manual for more information of fault conditions and actions to remove them. Refer to the Communications section of this manual for additional information on the Alarm Relay.

Controlling Modes Using the Level Switch Assembly

The level switches in the solution tank allow for automatic initiation of RUN and STOP Modes for the unit. When both level switches are low, the OSDG enters 'RUN' mode and makes solution until both level switches are high. Once both level switches have been triggered high (both in the "up" position), the unit enters 'Standby' until both level switches are again in the low position.

If desired, the unit may be put into "constant-run" mode by connecting the two halves of the level switch cable on the back I/O panel. This will bypass the level switches and prevent the unit from ever going into standby, effectively allowing manual control of the unit via the START/STOP button on the Touch Display. Care should be taken not to leave to the unit in this mode to prevent overflow of the disinfectant/solution storage tank.

Communications

USB
A USB memory stick can be plugged into the USB port on the back panel at any time to log the system's status and operational parameters. Contact Customer Support for additional information on this feature.

> ***NOTE: It is recommended to use a new, dedicated USB memory stick for any data logging to prevent any unexpected file interactions with the ClorTec-SD OSDG.***

Ethernet
To remotely monitor the system over Ethernet, an Ethernet cable must be connected from the back of the unit to an existing Ethernet network that supports DHCP.

Alarm Relay
In the event of a Fault condition, the ClorTec-SD OSDG is equipped with an alarm relay that will close a contact in the event of a hard fault. This allows operators to connect the OSDG to audible or visual alarms, or to monitor the state (running, or faulted) of the ClorTec-SD OSDG via a facilities or plant monitoring and/or control system. Note that while this feature will send alarm status information to a larger control system, it does not allow for external control or interpreting of system parameters via plant control systems, visual inspection of the condition on the ClorTec-SD control panel will need to be conducted to identify the fault and initiate corrective action.

SCADA (Supervisory Control And Data Acquisition) Communications
This unit will allow for the OSDG to be operated, monitored, and otherwise interface with a SCADA plant control system. Contact Customer Support for additional information on this feature.

Troubleshooting

Fault Conditions

The ClorTec-SD OSDG is preprogrammed with fault conditions which trigger whenever the system is not running normally. Faults automatically shut the system down and require a manual clearing of the Fault to reset the system.

#	DESCRIPTION	CONDITIONS	DELAY (SEC)	LONG STARTUP FLUSH?
1	UNDEFINED TANK LEVELS	UPPER TANK LEVEL = 1 AND LOW TANK LEVEL = 0	0	
2	HIGH CELL CURRENT	CELL CURRENT > 130% OF SETPOINT	30	YES
3	HIGH OUTLET TEMP	SOLUTION TEMP > 150°F	30	YES
4	HIGH DELTA TEMP	DELTA TEMP > 50°F	30	YES
5	LOW WATER TEMP	WATER TEMP < 40°F	30	
6	HIGH BRINE PUMP SIGNAL	BRINE PUMP SPEED > 40 (RPM)	30	YES
7	LOW CELL VOLTAGE	CELL VOLTAGE < 6 VDC	10	
8	LOW WATER PRESSURE	WATER PRESSURE INPUT = 0	30	YES
9	LOW CELL CURRENT	CELL CURRENT < 6 AMPS	120	
10	HIGH HIGH CELL CURRENT	CELL CURRENT > 150% OF SETPOINT	0	YES
11	MODBUS NETWORK	MODBUS STATUS > 0	5	
12	HIGH WATER TEMP	WATER TEMP > 95°F	30	
13	HIGH HIGH DELTA TEMP	DELTA TEMP > 55°F	0	
14	LOW LOW CELL CURRENT	CELL CURRENT < 3 AMPS	3	

Table 1: Fault conditions descriptions

Resolving Faults

In order to clear Fault conditions, navigate the following screens/buttons:

MAIN SCREEN →MENU → FAULTS → RESET

Pressing the RESET button on the FAULTS page will clear the Fault condition and allow the system to attempt to re-start. **Note that clearing the Fault and restarting the system does not necessarily mean the problem will go away, only that the unit will try to resume normal operation**. Refer to Table 2 and the rest of the General Troubleshooting section for assistance in resolving faults. If the cause of the fault cannot be resolved, contact your service provider for more advanced troubleshooting.

General Troubleshooting

Every ClorTec-SD OSDG is fully tested before leaving the factory, but sometimes things do go wrong. The following table lists common potential problems, their possible causes, and how to resolve them.

Problem	Probable Cause(s)	Remedial Action
No display visible when switch turned on.	1. Correct power not getting to system. 2. Power Supply Failure	1. Confirm power is available from the wall, power cord is properly connected to unit, and fuse is not blown. 2. Contact Customer Support for guidance on troubleshooting and/or getting the power supply replaced.
ClorTec-SD OSDG system chlorine production lower than normal, or chlorine residual in water system below normal.	1. High flow through cell. 2. Cell exit ports blocked. 3. Injection system malfunction. 4. Cell life depleted. 5. Break in water distribution lines. 6. Solution stored too long before use. 7. System Running outside of specifications.	1. Measure flow. 2. Clear blockage. If blockage cannot be removed, replace cell. 3. Check cell amperage, flow, chlorine production, and salt consumption. Replace cell if necessary. 4. Check for leaks and repair. 5. Call sales agent or Customer Support. 6. Verify measurements with demand free water. 7. Confirm all parameters are within system specifications outlined in Table 1. If the problem persists, contact your service provider.

Problem	Probable Cause(s)	Remedial Action
System faults immediately on startup.	1. Brine is not fully saturated. 2. Water or Brine feed not getting to system	1. Add more salt and wait 30-60 minutes to allow brine to fully saturate. Then restart the system. 2. Confirm brine and water feeds are connected and all valves in between supplies and inlets are open. Check for and remove salt crystals that have formed blockages in the brine lines.
System faults immediately on startup.	1. Water or brine feed not getting to system.	1. Confirm brine and water feeds are connected and all valves in between supplies and inlets are open.
Display Reads: UNDIFINED TANK LEVEL	1. Level switches not installed properly	1. Verify level switches are not installed backwards (high sensor installed where low should be, etc.
Display Reads: HIGH CELL CURRENT	1. Loss of water supply. 2. Blockage of cell exit ports. 3. Too much conductivity in cell.	1. Check water feed line to ClorTec-SD OSDG System. 2. Turn system off, remove cell exit port disconnects, and remove any obstructions within ports. 4. Close the brine feed. Toggle 3X for 30 seconds each, let third restart complete and open brine feed.
Display Reads: HIGH OUTLET TEMP	1. Loss of water supply. 2. Blockage of cell exit ports. 3. Temperature sensor failure 4. High ambient temperature	1. Check water feed line to ClorTec-SD OSDG System. 2. Turn system off, remove cell exit port disconnects, and remove any obstructions within ports. 3. Temporarily swap the thermowell assemblies or otherwise verify correct temperature is being displayed on the ClorTec-SD. Contact Customer Service to troubleshoot sensor. 4. Verify operating environment meets system specifications.

Problem	Probable Cause(s)	Remedial Action
Display Reads: LOW FEED WATER TEMP	1. Feed water temperature too low. 2. Temperature sensor failure	1. Increase feed water temperature to above 50°F (10°C) prior to restarting system. 5. Temporarily swap the thermowell assemblies or otherwise verify correct temperature is being displayed on the ClorTec-SD.
Display Reads: HIGH BRINE PUMP DUTY	1. Low brine concentration. 2. Brine pump air locked. 3. Brine pump locked due to debris. 4. Brine line ruptured or clogged. 5. Pump Tubing is worn and needs replacement. 6. Controller board failure or brine pump worn out. 7. Cell life depleted	1. Check the salt, water and brine level in the brine tank. Add salt to the brine tank to salt fill level. 2. Verify brine inlet valve is open. Remove the tube on the inlet to the brine pump and purge the air from the brine line. 3. Remove debris from brine pump. 4. Replace peristaltic pump brine line. Contact Customer Support for assistance and replacement tubing. 5. Verify pump turns by removing the cover and manually rotating the roller. 6. Replace brine pump.
Display Reads: DELTA TEMP CELL	1. Blockage of flow through cell (#1 or #2). 2. Temperature sensor failure.	1. Turn system off, remove cell exit port disconnects and remove any obstructions within the ports. 2. Replace temperature sensor. 3. Verify temperature (inlet/outlet water).

Table 2 : General troubleshooting approaches

NOTE: Following any troubleshooting, Reset the Fault and attempt to resume generation. If the suggested remedial action does not resolve the problem and the system continues to not function properly, contact your service provider for further assistance.

Maintenance

The ClorTec-SD OSDG is designed for minimal maintenance. If the water and brine supplies are within the specifications, there should be almost no maintenance required to keep the unit running.

Salt Loading

Salt load will be required to maintain saturated brine levels. Maintain a visible level of salt inside the brine tank at all times. Upon initial startup, up to five (5) 50-pound (22 kilogram) bags of salt can be loaded into the integrated brine tank. Do not overfill the tank. The tank should be routinely inspected to ensure that there is a visible level of salt in the tank. Refer to the **Integrated Brine Tank** manual for further details.

General Plumbing Checks

The ClorTec-SD OSDG internal plumbing arrives preassembled with secured plumbing connections which should never require replacement; however, if any of the internal plumbing connections are broken, the connections should be resealed with zip ties or hose clamps.

Changing Peristaltic Pump Tubes

Other maintenance which might be necessary includes routine replacement of the peristaltic pump tubes for the water and brine pumps. The pump tubes should be changed if overall system flowrate falls below 50% of the specified flow, the system consistently faults for high brine-pump duty or if liquid is seen running out of the system housing.

Contact Customer Support for guidance and spare parts to change the peristaltic pump tubing.

Safety

Caution should be taken to prevent accidental exposure of brine and solution. Do not get in eyes, on skin or on clothing. Refer to the product label for appropriate First Aid and Precautionary Statements.

Safety

Always disconnect power from unit before performing maintenance.

APPENDICES

a. Water Quality Guidelines

Water Quality Guidelines

Concentrations or measurements in brine feed water and/or treated water that are less than the stated limits are not anticipated to have the stated effect. Failure to maintain these factors can affect the production of the ClorTec-SD OSDG system, or the life of the cell. It is important to use "worst case" measures since water quality can vary from season to season.

Table 3 Water Quality Guidelines

	MEASURE	LIMIT
Total Hardness **	grains/gal (or mg/L)	<1 grain (<17 mg/L)
Iron (Fe) **†	mg/L	<1 mg/L **
Manganese (Mn)	µg/L	<50 µg/L **
Fluoride (Fl)	mg/L	<1 mg/L
Silica (SiO_2)	mg/L	<20 mg/L
Bromide	mg/L	<50 mg/L
Cyanide	mg/L	<1 mg/L
Lead (Pb)	mg/L	<2 mg/L
Dissolved Sulfides (as H_2S)	mg/L	***
Ammonia Nitrogen (NH_3-N)	mg/L	***
Organic Nitrogen (Org-N)	mg/L	***
Total Organic Carbon (TOC)	mg/L	***
pH	-	5-9
Water Temperature Range ^	°F (or °C)	55-80 °F (12-27°C)

**Caution: water softeners will remove these components up to a limit. See references to maximum ferrous iron and manganese in water softener documentation. Total hardness affects cell life only in that higher hardness requires acid washing to remove carbonate deposits from the cell. Use of water softened to < 1 grain hardness should not require acid washing of the cell.

*** For Water Treatment Applications, Solution demand is affected by any level of H2S, ammonia or organic nitrogen, or TOC. Contact customer support for more information.

† Iron may deposit Fe(OH)3 on the anode, causing an electrical "blind", which would increase the brine proportion pump signal voltage (brine proportion pump speed) needed for the system to reach the operating window. Chlorine production would remain the same, but salt conversion efficiency will decrease. The same effect is true of silica on the cathode.

^ The system will operate with water temperatures outside this range; however, there will be a performance change. Follow the system specifications for absolute limits.

ClorTec®-SD Series On-Site Surface Disinfectant and Sanitizer Generator

Supplemental:

Disinfectant and Sanitizer Directions for Use

3 November, 2021

De Nora maintains a constant product improvement program that may affect design and/or specifications. The company reserves the right to make these changes without prior notice or liability. Portions of the ClorTec®-SD OSGs are covered by U.S. Patent

Customer Service

Toll free Product/Tech Support

T: 1.800-646-9426, option 2

Tech Support

C: 1.505-377-5879

Email

clortecsd.support@denora.com

Web Support

https://info.denora.com/contact-dnwt-service

International distributors and sales agents located worldwide

CONTENTS

CLORTEC™-SD DIRECTIONS FOR USE

The solution produced by the ClorTec-SD can be used full strength, or diluted depending on the desired applications and organisms of concern. The three recommended concentrations are as follows:

Type of Solution	Concentration of active ingredients	Label Color
Low concentration Santizing Solution	0.05% Free Available Chlorine	GRAY
Mid concentration Sanitizing Solution	0.1% Free Available Chlorine	BLUE
High concentration Disinfecting Solution	0.6% Free Available Chlorine	GREEN

ClorTec-SD Low Concentration Sanitizing Solution (0.05%)

- Prior to dispensing solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- Dilute generated product with 10 parts water to 1 part ClorTec-SD solution. For example: Mix 10 gallons of water with 1 gallon of ClorTec-SD solution. Drinking quality tap water is acceptable. If not available, bottled water or other clean, filtered source is acceptable. Care should be taken to use water that has little to no chlorine demand.
- Limit exposure of the solution to sunlight and heat sources.
- If not already present, place proper label on the bottle to be used to store and/or dispense the solution.
- Include time (day/hour) when ClorTec-SD 0.05% solution is dispensed and diluted on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.05% Solution) from dispensing and diluting and kept in sealed bottles. Do not use 48 hours after dispensing the product from the tank and diluting it. Refer to the label indicating time when dispensed.
- If the solution is expired dispose of it in accordance with local regulation and prepare a new solution.
- ClorTec-SD 0.05% solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list refer to the below table).
- Pre-clean visibly soiled surfaces according to the instructions below.
- Spray ClorTec-SD 0.05% solution directly onto the surface to be sanitized. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 2 minutes. After 2 minutes, rinse with potable water.
- **ClorTec-SD 0.05% solution has been tested in the presence of 5% organic soil (blood serum) against *Staphylococcus aureus* (ATCC 6538) on food contact surfaces and *Klebsiella pneumoniae* (ATCC 4352) on non-food contact surfaces.**

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

ClorTec-SD Mid Concentration Sanitizing Solution (0.1%)

- Prior to dispensing solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- Dilute generated product with 5 parts water to 1 part ClorTec-SD solution. For example: Mix 5 gallons of water with 1 gallon of ClorTec-SD solution. Drinking quality tap water is acceptable. If not available, bottled water or other clean, filtered source is acceptable. Care should be taken to use water that has little to no chlorine demand.
- Limit exposure of the solution to sunlight and heat sources.
- If not already present, place proper label on the bottle to be used to store and/or dispense the solution.
- Include time (day/hour) when ClorTec-SD 0.1% solution is dispensed and diluted on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 48 hours (0.1% Solution) from dispensing and diluting and kept in sealed bottles. Do not use 48 hours after dispensing the product from the tank and diluting it. Refer to the label indicating time when dispensed.
- ClorTec-SD 0.1% solution can be used as a sanitizer on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the manual.)
- Pre-clean visibly soiled surfaces according to the instructions below.
- Spray ClorTec-SD 0.1% solution directly onto the surface to be sanitized. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 2 minutes. After 2 minutes, rinse with potable water.
- ClorTec-SD 0.1% solution has been tested in the presence of 5% organic soil (blood serum) against *Staphylococcus aureus* (ATCC 6538) on food contact surfaces and *Klebsiella pneumoniae* (ATCC 4352) on non-food contact surfaces.

Special Cleaning Instructions Prior to Sanitization of Heavily Soiled Surfaces:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before sanitization by application with a clean cloth, mop, and/or sponge saturated with the sanitizer product. Cleaning is to include vigorous wiping and/or scrubbing, until all visible soil is removed. Special attention is needed for high-touch surfaces. Do not reuse soiled cloths.

ClorTec-SD High Concentration Disinfecting Solution (0.6%)

- Ready-to-Use. No further dilution required.
- Limit exposure of the solution to sunlight and heat sources.
- Prior to dispensing solution for the first use of each day, confirm the solution in the product tank is at the appropriate concentration using a colormetric test strip provided with the ClorTec-SD. Ensure to follow the instructions included on the bottle of test strips. If the solution is not at 0.6% (6000 ppm) concentration, drain the solution from the tank to allow the ClorTec-SD to produce fresh product. Retest freshly generated solution to ensure concentration prior to dispensing into individual bottles.
- If not already present, place proper label on the bottle to be used to store and/or dispense the solution.
- Include time (day/hour) when ClorTec-SD 0.6% solution is dispensed on the bottle using the dedicated label.
- Efficacy of the solution is maintained if used within 24 hours (0.6% Solution) from dispensing and diluting and kept in sealed bottles. Do not use 24 hours after dispensing the product from the tank. Refer to the label indicating time when dispensed.
- If the solution is expired, dispose it in accordance with local regulation and prepare a new solution.
- ClorTec-SD 0.6% solution can be used as a disinfectant on a variety of hard, non-porous, food and non-food environmental surfaces, and non-critical care equipment surfaces. (For a complete list, refer to the below table.)
- To kill fungi or *Clostridium difficile* spores, pre-clean surfaces according to the instructions below prior to spraying ClorTec-SD 0.6% solution.
- Spray ClorTec-SD 0.6% solution directly onto the surface to be disinfected. Hold sprayer 6 to 8 inches from the surface. Thoroughly wet the entire surface, allowing surface to remain visibly wet for 10 minutes. After 10 minutes, rinse with potable water. Thoroughly rinse surfaces when steel or coated metals are treated.
- **ClorTec-SD 0.6% kills: *Staphylococcus aureus* (ATCC 6538), *Pseudomonas aeruginosa* ATCC15442, *Salmonella enterica* ATCC10708, *Trichophyton interdigitale* ATCC9533, Poliovirus Type 1 (Sabin Strain LSc-2ab), *Feline Calicivirus* F-9 ATCCVR782, and Hepatitis C Virus ATCCVR534, HIV-1 (HTLV IIIB), *Clostridium difficile* ATCC43598.**

Special Instructions for Cleaning and Decontamination Against HIV and HCV of Surfaces/Objects Soiled with Blood/ Bodily Fluids:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Blood and other body fluids must be thoroughly cleaned from surfaces and objects. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from **right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces**, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.

Infectious Materials Disposal: Blood and other body fluids should be autoclaved and disposed of according to Federal, State and local regulations for infectious waste disposal.

Special Pre-Cleaning Instructions Prior to Disinfection for Fungi and *Clostridium difficile* spores ---- Cleaning Instructions Prior to Disinfection of Heavily Soiled Surfaces or for *Clostridium difficile* spores:

Personal Protection: Wear appropriate barrier protection such as gloves, gowns, masks, or eye covering.
Cleaning Procedure: Fecal matter/waste must be thoroughly cleaned from surfaces/objects before disinfection by application with a clean cloth, mop, and/or sponge saturated with the disinfectant product. Cleaning is to include vigorous wiping and/or scrubbing until all visible soil is removed. Special attention is needed for high-touch surfaces. Surfaces in patient rooms are to be cleaned in an appropriate manner, such as from **right to left or left to right, on horizontal surfaces, and top to bottom, on vertical surfaces**, to minimize spreading of the spores. Restrooms are to be cleaned last. Do not reuse soiled cloths.
Infectious Materials Disposal: Materials used in the cleaning process that may contain feces/wastes are to be disposed of immediately in accordance with local regulations for infectious materials disposal.

This product is not to be used as a terminal sterilant/high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, either into or in contact with the bloodstream or normally sterile areas of the body, or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to preclean or decontaminate critical or semi-critical medical devices prior to sterilization or high level disinfection.

PRECAUTIONS
• Handle, store and dispose in accordance to the instructions on the safety sheet.

MATERIAL COMPATIBILITY TABLE

MATERIAL		ClorTec-SD Solution Compatibility
Metal	AISI316steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI316Lsteel	Good. It is advisable to rinse thoroughly after applying the product.
Alloy	Nickel/Titanium	Good. It is advisable to rinse thoroughly after applying the product.
Metal	AISI 316Ti, EN 1.4571 steel	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Anodized aluminum	Good. It is advisable to rinse thoroughly after applying the product.
Metal	Epoxy coated metals	Good. It is advisable to rinse thoroughly after applying the product.
Polymer	Fluoroelastomer FKM, FPM (Viton®)	Good
Polymer	Ethylene propylene diene monomer EPDM	Good
Polymer	Chlorosulfonated polyethylene CSM	Excellent
Polymer	Polypropylene PP	Good
Polymer	Polyethylene PE	Good
Polymer	Polycarbonate	Good
Polymer	Polyethylene terephthalate PET	Excellent
Polymer	High-density polyethylene HDPE	Excellent
Polymer	Polyvinylidene fluoride PVDF	Excellent
Polymer	Polyvinyl chloride PVC	Excellent
Polymer	Polytetrafluoroethylene PTFE (Teflon™)	Excellent
Polymer	Polyaryletherketone, Polyetheretherketone PAEK, (PEEK™)	Excellent
Polymer	Silicone	Low
Polymer	Polyurethane PUR, PU	Good
Polymer	Polyoxymethylene copolymer POM	Good
Polymer	Polyamide PA6, PA66 (nylon)	Low
Polymer	Polybutylene terephthalate, PBT	Good
Polymer	Nitrile rubber NBR	Good
Polymer	Acrylonitrile butadiene styrene, ABS	Good
Ceramic		Excellent
Glass		Excellent