

1448-53

4-13-1981

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BUSAN[®] 881

(Formerly Busan 881M)

APR 13 1981
 Registered for use as a pesticide
 EPA Reg. No. 1448-53

Active ingredients:

Disodium cyanodithioimidocarbonete	14.7%
Potassium N-methyldithiocarbamate	20.3%
Inert ingredients	65.0%
<i>Weight per gallon</i>	10.2 lb
<i>Weight of active ingredients per gallon</i>	3.57 lb

Busan 881 is employed for microorganism control in pulp and paper mills, cane and beet sugar mills, petroleum secondary recovery operations, and recirculating commercial and industrial cooling water systems.

In pulp and paper mills, Busan 881 is used to control bacterial slime. Directions for this use are contained in the Product Data bulletin *Busan 881—For Microorganism Control in Pulp and Paper Mills*.

In cane and beet sugar mills producing raw sugar, Busan 881 is employed to inhibit the growth of bacteria that cause the inversion of sucrose, slime, and odors. Directions for this application are given in the Product Data bulletin *Busan 881—For Microorganism Control in Cane and Beet Sugar Mills*.

In petroleum secondary recovery operations, Busan 881 is used in waterfloods to control sulfate-reducing bacteria, iron bacteria, and bacteria that cause slime. For directions for this use, see the Product Data bulletin *Busan 881—For Microorganism Control in Petroleum Secondary Recovery Waters*.

In recirculating commercial and industrial cooling water systems, Busan 881 is used to inhibit the growth of algae and bacteria. For the methods of application, see the Product Data bulletin *Busan 881—For Microorganism Control in Cooling Water Systems*.

WARNING KEEP OUT OF REACH OF CHILDREN

Causes eye damage and skin irritation. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. Avoid contamination of food.

FIRST AID: *In case of skin contact*, wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. *If product gets in the eyes*, flush immediately with copious amounts of clean, cool water for at least 15 minutes. Get medical attention immediately. *If product is swallowed*, call a physician immediately. If patient is conscious, induce vomiting by stroking or tickling the patient's throat or far back on patient's tongue. Emetics such as 2 teaspoonsful (10 ml) of ipecac syrup or 1 teaspoonful (5 ml) of dry mustard in warm water to form a paste or even soap in warm water can be used. Repeat until vomit fluid is clear. Then have patient drink plenty of milk, gelatin solution, beaten egg whites, flour and water, or other nonoily demulcent. *Never induce vomiting or give anything by mouth to an unconscious person.*

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsion may be needed.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish. Keep out of lakes, streams, or ponds. Permits may be required for discharges containing this pesticide into lakes, streams, ponds, or public water. For guidance, contact the regional office of the Environmental Protection Agency.

STORAGE & DISPOSAL

PROHIBITIONS: Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

PESTICIDE DISPOSAL: Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

CONTAINER DISPOSAL: Triple rinse (or equivalent) and dispose in an incinerator or landfill approved for pesticide containers, or bury in a safe place.

GENERAL: Consult Federal, State, or local disposal authorities for approved alternative procedures such as limited open burning.

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BUCKMAN LABORATORIES, INC.
 MEMPHIS, TENN. 38108, U.S.A.

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Product Data

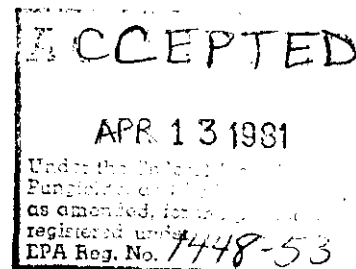
January 15, 1981

Bulletin No. A34

Busan® 881

(Patents issued or pending in U.S.A. and other countries)

For Microorganism Control in Pulp and Paper Mills



Busan 881 is a broad-spectrum microbicide developed for the control of microorganisms in industrial processes. It provides a unique combination of organic sulfur compounds that is effective in the control of bacterial slime in the manufacture of pulp, paper, and paperboard. It is compatible with most pulp mill stocks and paper machine furnishes, and it is effective in the pH range generally employed in the manufacture of pulp and paper. It contributes no odor or taste to the paper or paperboard products. Busan 881 is composed of substances that have been allowed for use in the production of paper and paperboard under U.S. Food and Drug Administration Regulation 176.300.

PRODUCT CHARACTERISTICS

Busan 881 is a liquid packed in nonreturnable drums with bungs. Penton, Teflon, polyethylene, polypropylene, molded nylon, and stainless steel are all satisfactory for storing and handling Busan 881. Prolonged contact of concentrated Busan 881 with copper or copper alloys, however, should be avoided. Busan 881 is completely soluble in water. The composition and some of the physical properties of Busan 881 are as follows:

Active ingredients:

Disodium cyanodithioimidocarbonate	14.7%
Potassium N-methyldithiocarbamate	20.3%
Inert ingredients	65.0%
Density at 25 °C (77 °F)	1.22 g/mL
Approximate weight per gallon	10.2 lb
Approximate volume per kilogram	820 mL
Approximate volume per pound	370 mL
pH of 100 parts per million in distilled water	9-10

Busan 881 will freeze if stored at very low temperatures for prolonged periods, but will not solidify above -18 °C (0 °F). Before being opened and used, drums of Busan 881 that may be frozen should be stored in an area with a temperature above 4 °C (40 °F) for sufficient time to allow complete thawing.

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METHODS OF APPLICATION

Busan 881 can be fed directly from the shipping containers by use of chemical-metering pumps. It can also be dispensed in suitable measuring containers or by means of drip-feed devices.

For control of bacterial slime in pulp and paper systems, Busan 881 is employed at 0.4 to 2.0 kg per tonne (0.8 lb to 4.0 lb per ton) of pulp or paper (dry basis) for treatment periods of 6 hours out of each 12, or each 24 hours. The concentration and frequency of treatment should be adjusted higher or lower according to the rate of slime accretion. Best results are generally obtained by feeding Busan 881 into the suction side of the fan pump or into white water or stock moving to the fan pump. When necessary, this can be supplemented by treatment of fresh water, slush pulp, broke, or other furnish components with Busan 881.

When microbiologically contaminated furnish is added to the system, the supplementary addition of 0.5 kg of Busan 881 per tonne (1.0 lb per ton) of this furnish (dry basis) to each beater or pulper will aid in keeping the system free of slime. Broke may also require supplementary treatment. For uncoated broke, the addition of 0.25 to 0.5 kg of Busan 881 per tonne (0.5 to 1.0 lb per ton) will usually be adequate, but coated broke may require as much as 1.0 kg per tonne (2.0 lb per ton).

Slush pulp may require treatment with a microbicide to preserve the pulp and to prevent contamination of papermaking systems. Pulp that may be held in storage for 8 hours to 1 week should be treated with 0.25 to 0.75 kg of Busan 881 per tonne (0.5 to 1.5 lb per ton) of moisture-free pulp.

When the fresh water used on the machine is a significant source of microbiological contamination, treatment of this water with Busan 881 will aid in slime control on the machine. For this purpose, Busan 881 is added to the fresh water at concentrations of 2 to 5 parts per million (by weight) for treatment periods of 6 to 12 hours out of each 24 hours. Busan 881 should not be added to water used for drinking or bathing.

In addition to use of effective microbicides, good housekeeping is also essential to a good slime control program. Before treatment with Busan 881 is started, the system should be cleaned thoroughly to remove old deposits of slime, pitch, scale, etc., and cleaning of the system should be repeated periodically in order to get the best results from use of the microbicide. Cleaning procedures used should include both mechanical cleaning with high-pressure hoses and other mechanical devices and, if possible, circulation of a hot chemical cleaning solution to all parts of the system.

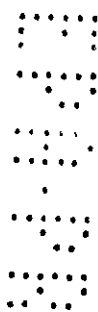
A suitable cleaning solution can be prepared by adding 7.5 kg of caustic soda (sodium hydroxide) and 1 litre of Busperse® 47 or 2 litres of Busperse 46 to each cubic metre of water (60 lb of caustic soda and 1 gallon of Busperse 47 or 2 gallons of Busperse 46 to each 1000 gallons of water). Sodium metasilicate or sodium carbonate are suggested replacements for caustic soda in systems with surfaces that may be adversely affected by strongly alkaline solutions. Prepare sufficient cleaning solution to fill the largest chest or tank in the system. Heat the solution to about 65 °C (149 °F) and move it stepwise through the entire system, allowing it to remain in contact with each part of the system for at least two hours. As it is moved through the system, the solution should be kept at a temperature above 50 °C (122 °F) by introduction of live steam, either through a permanent piping arrangement or through steam hoses. Prolonged contact of the hot cleaning solution with wires or forming fabrics should be avoided, and precautions should be taken to see that loosened deposits do not damage the wires or fabrics. When circulation of the cleaning solution is completed, the wire or fabric should be rinsed thoroughly with fresh water, the cleaning solution should be discharged to the sewer, and the entire system should be flushed with fresh water. Addition of 0.1 percent Busan 881 to the final rinse water is recommended.

PRECAUTIONS

The following are the human and environmental safety precautions appearing on the Busan 881 label:

WARNING KEEP OUT OF REACH OF CHILDREN

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FIRST AID: *In case of skin contact, wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. If product gets in the eyes, flush immediately with copious amounts of clean, cool water for at least 15 minutes. Get medical attention immediately. If product is swallowed, call a physician immediately. If patient is conscious, induce vomiting by stroking or tickling the patient's throat or far back on patient's tongue. Emetics such as 2 teaspoonsful (10 mL) of ipecac syrup or 1 teaspoonful (5 mL) of dry mustard in warm water to form a paste or even soap in warm water can be used. Repeat until vomit fluid is clear. Then have patient drink plenty of milk, gelatin solution, beaten egg whites, flour and water, or other nonoily demulcent. Never induce vomiting or give anything by mouth to an unconscious person.*

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsion may be needed.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish. Keep out of lakes, streams, or ponds. Permits may be required for discharges containing this pesticide into lakes, streams, ponds, or public water. For guidance, contact the regional office of the Environmental Protection Agency.

STORAGE & DISPOSAL

PROHIBITIONS: Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

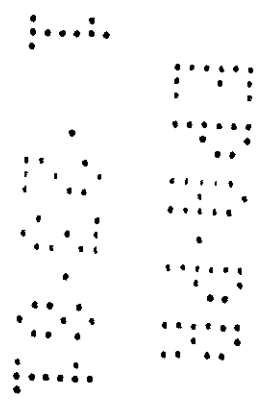
PESTICIDE DISPOSAL: Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

CONTAINER DISPOSAL: Triple rinse (or equivalent) and dispose in an incinerator or landfill approved for pesticide containers, or bury in a safe place.

GENERAL: Consult Federal, State, or local disposal authorities for approved alternative procedures such as limited open burning.

Recommendations given in this bulletin are based on tests believed to be reliable. However, the use of the product is beyond the control of Buckman Laboratories, Inc., and no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice. The buyer must assume all responsibility, including injury or damage, resulting from misuse of the product as such, or in combination with other materials. This bulletin is not to be taken as a license to operate under or recommendation to infringe any patent.

Printed in U.S.A.





Product Data

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January 15, 1981

Bulletin No. C17

Busan® 881

(Patents issued or pending in the U.S.A. and other countries)

For Microorganism Control in Cooling Water Systems

Busan 881 is effective for the control of algae and bacteria in recirculating commercial and industrial cooling water systems. It does not cause foaming and thus can be added to systems by slug addition at maximum use concentrations. Busan 881 also is not lost from systems by evaporation.

PRODUCT CHARACTERISTICS

Busan 881 is a liquid packed in nonreturnable drums with bungs. Penton, Teflon, polyethylene, polypropylene, molded nylon, and stainless steel are all satisfactory for storing and handling Busan 881. Prolonged contact of concentrated Busan 881 with copper or copper alloys, however, should be avoided. Busan 881 is completely soluble in water. The composition and some of the physical properties of Busan 881 are as follows:

Active ingredients:

Disodium cyanodithioimidocarbonate	14.7%
Potassium N-methyldithiocarbamate	20.3%
Inert ingredients	65.0%
Density at 25 °C (77 °F)	1.22 g/mL
Approximate weight per gallon	10.2 lb
Approximate volume per kilogram	820 mL
Approximate volume per pound	370 mL
pH of 100 parts per million in distilled water	9-10

Busan 881 will freeze if stored at very low temperatures for prolonged periods, but will not solidify above -18 °C (0 °F). Before being opened and used, drums of Busan 881 that may be frozen should be stored in an area with a temperature above 4 °C (40 °F) for sufficient time to allow complete thawing.

METHODS OF APPLICATION

Busan 881 can be fed into systems by means of chemical-metering pumps or can be dispensed in suitable measuring containers. As a general rule, it is recommended that before treatment of a cooling water system with Busan 881 is begun, the system should be cleaned thoroughly to remove all old algal growths, microbiological slime, and other deposits. The system then should be drained, flushed, and refilled with fresh water and regular treatment with Busan 881 initiated.

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To control the growth of algae and bacteria on cooling towers, in heat exchangers, and in other parts of recirculating cooling water systems, Busan 88T is used at concentrations of 5 to 30 parts per million (ppm) by weight or 0.5 to 3.0 fl oz of Busan 881 per 1000 gal of water in the system. However, an initial addition of 15 to 30 ppm Busan 881, based on the total weight of water in the system (1.5 to 3.0 fl oz of Busan 881 per 1000 gal of water) is recommended. Subsequent additions of 5 to 30 ppm Busan 881 (0.5 to 3.0 fl oz of Busan 881 per 1000 gal of water) should be made at 1 to 5 day intervals, depending on the amount of blowdown or bleedoff and the severity of the microbiological fouling.

PRECAUTIONS

The following are the human and environmental safety precautions appearing on the Busan 881 label:

WARNING KEEP OUT OF REACH OF CHILDREN

Causes eye damage and skin irritation. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. Avoid contamination of food.

FIRST AID: *In case of skin contact*, wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. *If product gets in the eyes*, flush immediately with copious amounts of clean, cool water for at least 15 minutes. Get medical attention immediately. *If product is swallowed*, call a physician immediately. If patient is conscious, induce vomiting by stroking or tickling the patient's throat or far back on patient's tongue. Emetics such as 2 teaspoonsful (10 mL) of ipecac syrup or 1 teaspoonful (5 mL) of dry mustard in warm water to form a paste or even soap in warm water can be used. Repeat until vomit fluid is clear. Then have patient drink plenty of milk, gelatin solution, beaten egg whites, flour and water, or other nonoily demulcent. *Never induce vomiting or give anything by mouth to an unconscious person.*

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsion may be needed.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish. Keep out of lakes, streams, or ponds. Permits may be required for discharges containing this pesticide into lakes, streams, ponds, or public water. For guidance, contact the regional office of the Environmental Protection Agency.

STORAGE & DISPOSAL

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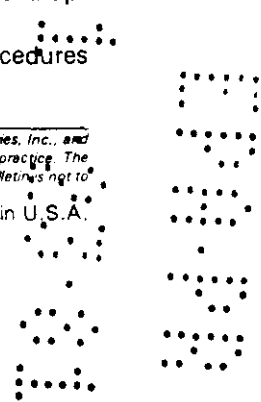
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Product Data

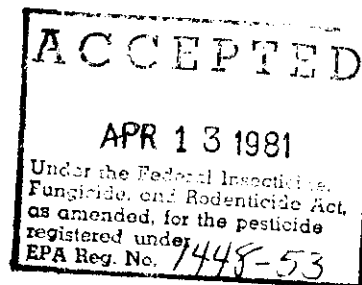
January 15, 1981

Bulletin No. S2

Busan® 881

(Patents issued and pending in the U.S.A. and other countries)

For Microorganism Control in Cane and Beet Sugar Mills



Busan 881 is a broad-spectrum microbicide that is effective in the control of the bacteria that cause sucrose losses, troublesome slimes, and bad odors during the manufacture of raw cane and beet sugar.

The application of Busan 881 as recommended reduces sucrose losses caused by enzymatic inversion, provides control of troublesome bacteria, e.g., *Leuconostoc mesenteroides* and *Bacillus stearothermophilus*, and helps to keep mill systems free of microbiological slime and odors. Busan 881 is simple to apply, and its use can increase the recovery of commercial sugar, reduce corrosion of mill equipment, improve clarification and pan boiling, and reduce man-hours required for cleaning of mill systems.

Busan 881 is composed of substances that have been allowed for use in cane and beet sugar mills under U.S. Food and Drug Administration Regulation 173.320.

PRODUCT CHARACTERISTICS

Busan 881 is a liquid packed in nonreturnable drums with bungs. Penton, Teflon, polyethylene, polypropylene, molded nylon, and stainless steel are all satisfactory for storing and handling Busan 881. Prolonged contact of concentrated Busan 881 with copper or copper alloys, however, should be avoided. Busan 881 is completely soluble in water. The composition and some of the physical properties of Busan 881 are as follows:

Active ingredients:

Disodium cyanodithioimidocarbonate	14.7%
Potassium N-methyldithiocarbamate	20.3%
Inert ingredients	65.0%
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Approximate weight per gallon	10.2 lb
Approximate volume per kilogram	820 mL
Approximate volume per pound	370 mL
pH of 100 parts per million in distilled water	9-10

Busan 881 will freeze if stored at very low temperatures for prolonged periods, but will not solidify above -18 °C (0 °F). Before being opened and used, drums of Busan 881 that may be frozen should be stored in an area with a temperature above 4 °C (40 °F) for sufficient time to allow complete thawing.

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METHODS OF APPLICATION

Busan 881 can be fed into the system directly from the shipping containers by use of a chemical-metering pump, or it can be dispensed in suitable measuring containers.

Cane Sugar Mills

Busan 881 should be added to the cane juice at a point or points where the microbicide will circulate to all parts of the grinding equipment, troughs, screens, and pipes with which the juice comes in contact. Usually two points on each tandem are recommended for the application of Busan 881. Approximately 35 percent of the dosage should be added to the juice from the crusher and approximately 65 percent of the dosage should be added to the juice from the next-to-last mill. *Busan 881 should never be added to the maceration water.*

Busan 881 should be fed continuously at a total feed rate of 20 ppm (parts per million) based on the weight of cane ground. This is equivalent to 11.4 mL of Busan 881 per minute for each 1000 tonnes of cane ground per 24-hour day (or 0.35 fluid ounce of Busan 881 per minute for each 1000 tons of cane ground per 24-hour day). Do not exceed a total feed rate of 16.4 litres (20 kg) of Busan 881 per 1000 tonnes of cane ground per 24 hours [or 3.9 gallons (40 lb) of Busan 881 per 1000 tons of cane ground].

Busan 881 is more effective when added to juice having a pH value below 5.5. Higher juice temperatures [up to about 65° C (150 °F)] will also increase its effectiveness.

Good housekeeping, including periodic cleaning *at least once per 8-hour shift*, is also important for the most efficient control of microorganisms. Regular hosing of mills, bagacillo conveyors, and screens with hot water or steam is recommended. However, it is not necessary to stop the tandem for this hosing. The regular use of Busan 881 will result in easier and quicker mill cleaning.

Soon after Busan 881 treatment is begun, some of the benefits should be obvious in that slime and odors are controlled better, and the need for cleaning is reduced. However, for evaluation of the reduction in sucrose losses and the increase in sugar production, it is necessary to compare the data obtained during periods of treatment with the data from control periods in which no microbicide treatment was used. The preferred control or no-treatment period is usually the 30-day period immediately preceding the 30-day test period in which Busan 881 is employed.

The necessary data should be obtained through regular, representative sampling and analysis of first-expressed juices, mixed juices, and clarified juices during both the control period and the test period. The measurements needed on these samples are Brix and invert-sugar content. The data for each sampling point should be averaged for each day to compute daily average values. From these data and the data on the weight of cane ground, one can calculate the amount of sucrose lost during the 30-day control period and during the 30-day test period with Busan 881. Detailed information on suggested sampling procedures, methods of analysis, and methods for calculating inversion losses is contained in publications that are available from Buckman Laboratories.

Beet Sugar Mills

Busan 881 can be used in beet sugar mills to treat the wash water (used to wash the beet roots), the diffuser system, and the raw juice.

Busan 881 is added to the wash water continuously as it enters the washer at dosages of 4 to 8 ppm (weight/weight). This is equivalent to 2.3 to 4.6 mL of Busan 881 per minute for each 1000 tonnes of beets sliced per 24-hour day (or 0.070 to 0.14 fluid ounces of Busan 881 per minute for each 1000 tons of beets sliced per 24-hour day).

In diffuser systems, Busan 881 should be added continuously to the diffuser water supply at a dosage rate of 20 ppm (weight/weight). This is equivalent to 11.4 mL of Busan 881 per minute for each 1000 tonnes of beets sliced per 24-hour day (or 0.35 fluid ounce of Busan 881 per minute for each 1000 tons of beets sliced per 24-hour day).

If the diffuser system is not treated with Busan 881 and the raw juice from the diffuser has to be stored for 1 to 3 days during a mill shutdown, the raw juice should be treated with 20 parts of Busan 881 per million parts of juice (weight/weight). This treatment will help prevent spoilage of the juice during storage.

Do not exceed a total feed rate of 16.4 litres (20 kg) of Busan 881 per 1000 tonnes of beets sliced per 24 hours (or 3.9 gallons (40 lb) of Busan 881 per 1000 tons of beets sliced per 24 hours).

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PRECAUTIONS

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WARNING

KEEP OUT OF REACH OF CHILDREN

Causes eye damage and skin irritation. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling. Harmful or fatal if swallowed. Avoid contamination of food.

FIRST AID: *In case of skin contact*, wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. *If product gets in the eyes*, flush immediately with copious amounts of clean, cool water for at least 15 minutes. Get medical attention immediately. *If product is swallowed*, call a physician immediately. If patient is conscious, induce vomiting by stroking or tickling the patient's throat or far back on patient's tongue. Emetics such as 2 teaspoonsful (10 mL) of ipecac syrup or 1 teaspoonful (5 mL) of dry mustard in warm water to form a paste or even soap in warm water can be used. Repeat until vomit fluid is clear. Then have patient drink plenty of milk, gelatin solution, beaten egg whites, flour and water, or other nonoily demulcent. *Never induce vomiting or give anything by mouth to an unconscious person.*

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STORAGE & DISPOSAL

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