

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

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Background Report Reference

AP-42 Section Number: 3.3

Background Chapter: 2

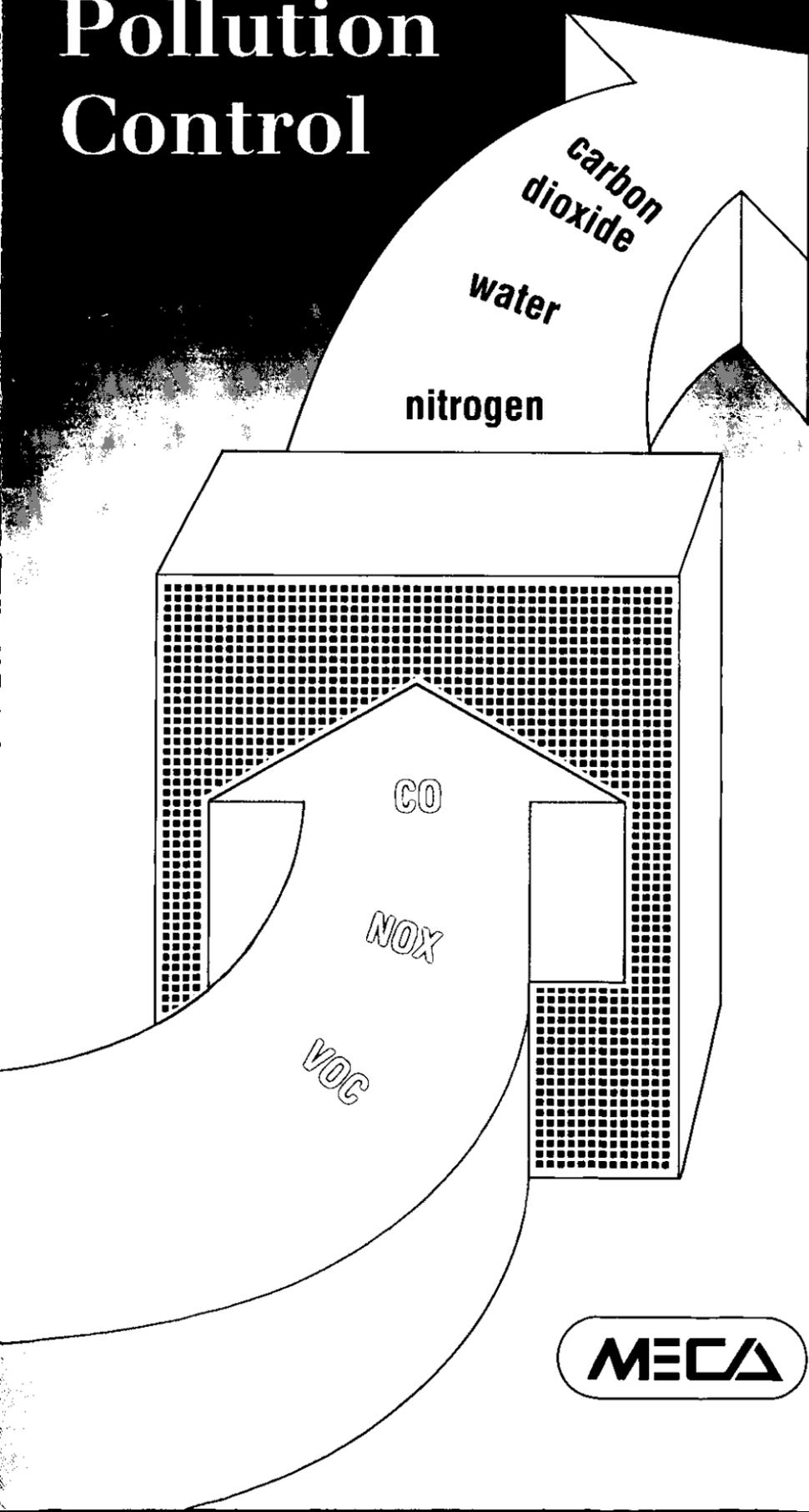
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Title: Catalysts for Air Pollution Control

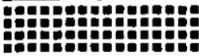
Manufacturers of Emission Controls
Association (MECA)

March 1992

Catalysts for Air Pollution Control



MECA



Catalysts for Air Pollution Control

CATALYTIC CONTROL APPLICATIONS LIST

This list of stationary sources which are utilizing, or potentially could use, catalytic technologies to control volatile organic compounds (VOC), carbon monoxide (CO) and/or Oxides of Nitrogen (NO_x) emissions was prepared to assist source operators and other interested parties investigating emission control options. For certain sources special considerations in selecting catalytic technologies are identified.

■ **Emission Control Efficiency** – Catalytic oxidation technology for VOC emissions in the 1970s and 1980s typically was designed for 80% to 90% control efficiency, but today this technology is providing control efficiencies in excess of 95%. Control efficiencies of 99+% theoretically can be, and in some special applications, have been achieved. Catalytic oxidation controls for CO emissions are achieving 90% to 99% in commercial applications. For NO_x control, Selective Catalytic Reduction (SCR) technology on lean burn engines has achieved

90% to 95% control efficiency and Non-Selective Catalytic Reduction (NSCR) on rich burn engines has reached 90-99% control efficiency levels.

■ **Selecting a Catalyst System** – In deciding whether catalyst technology is appropriate for a particular installation and if it is, which catalyst technology is most appropriate, good communication between the catalyst manufacturer and the source operator is needed.

For more information regarding catalytic controls and suppliers contact:

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This brochure is intended to provide general information on catalytic controls for those evaluating emission control options. Catalytic control equipment manufacturers should be consulted to determine the appropriateness of catalytic controls for a specific source application.

VOC APPLICATIONS**STATUS**
(Commercial, Pilot Program, Potential)**Special Considerations in Selecting Catalyst Technology****SURFACE COATING**

Aerospace Potential
 Automobile & Light-duty Trucks Commercial
 Auto Refinishing Potential
 Can Coating Commercial
 Coil Coating Commercial
 Fabric Coating Commercial
 Large Appliances Potential
 Marine Vessels Potential
 Metal Furniture Potential
 Misc. Metal Parts & Products Commercial
 Paper Coating Commercial
 Plastic Parts Coating
 Automobiles Commercial
 Business Machines Potential
 Wire Coating Commercial
 Wood Flatstock Coating Potential
 Wood Furniture Coating Potential

Large flow/low concentration Contaminants
 Low flow/low concentration

 Metal Contaminants
 Low flow/low concentration

PRINTING INKS

Flexographic Commercial
 Lithographic Commercial
 Rotogravure Commercial
 Screen Printing Commercial

Phosphorous Contaminants

SOLVENT USE

Adhesives Commercial
 Disc Manufacturing (flexible) Commercial
 Disc Manufacturing (rigid) Potential
 Dry Cleaning/Perchloroethylene Pilot Program
 Dry Cleaning/Petroleum Potential
 Fiberglass Manufacturing Commercial
 Food, Tobacco Processing Commercial
 Metal Cleaning and Degreasing Commercial
 Pharmaceutical
 Capsule Washing Commercial
 Drug Manufacturing Potential
 Pill Coating Commercial
 Photo Finishing Labs Potential
 Semi-conductors Manufacturing Commercial

Metal Contaminants

Silicone Contaminants

CHEMICAL & PETROLEUM

Chemical Manufacturing Commercial
 Oil Tank Cleaning and De-Commissioning Potential
 Paint & Ink Manufacturing Commercial
 Petroleum Production, Refining and Manufacturing Commercial
 Resin Manufacturing Commercial

Contaminants
Metal Contaminants**INDUSTRIAL/COMMERCIAL PROCESSES**

Aircraft Manufacturing Commercial
 Automotive Parts Manufacturing Commercial
 Breweries / Wineries Pilot Program
 Carbon Fiber Manufacturing Commercial
 Coffee Roasting Commercial
 Commercial Bakeries Commercial
 Commercial Charbroiling Pilot Program
 Electronics Manufacturing Commercial
 Gas Purification Commercial
 Hospital Sterilizers (ethylene oxide) Commercial
 Spray Painting Commercial
 Tire Manufacturing Commercial

Seasonal Operation

Particulates

-continued



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VOC APPLICATIONS -continued**STATUS**
(Commercial, Pilot
Program, Potential)**Special Considerations in
Selecting Catalyst Technology****ENGINES**Diesel Engines
Lean Burn IC
Natural Gas Compressors
Oil Field Steam Generators
Rich Burn ICCommercial
Commercial
Commercial
Potential
CommercialSite Specific
Site Specific**CROSS MEDIA TRANSFER**Air Stripping
Soil RemediationCommercial
Commercial**POWER GENERATION**

Resource Recovery (MWI)

Potential

Fuel Contaminants

NO_x APPLICATIONS**CHEMICAL & PETROLEUM**Refinery Boilers
and Process Heaters
Nitric Acid PlantsCommercial
Commercial**INDUSTRIAL/COMMERCIAL
PROCESSES**

Cement Kilns (commercial)

Potential

Particulate Contaminants

ENGINESDiesel Engines
Lean Burn IC
Rich Burn ICCommercial
Commercial
Commercial

Soot

POWER GENERATIONResource Recovery (MWI)
Stationary Gas Turbines
Utility/Industrial Boilers
(gas, oil, or coal fired)Commercial
Commercial
CommercialContaminants

Oil/Coal - Contaminants,
Erosion, Masking**CO APPLICATIONS****ENGINES**Diesel Engines
Lean Burn IC
Natural Gas Compressor
Oil Field Steam Generators
Rich Burn ICCommercial
Commercial
Commercial
Potential
Commercial**POWER GENERATION**Resource Recovery (MWI)
Stationary Gas Turbines
Utility/Industrial Boilers
(gas, oil, or coal fired)Potential
Commercial
CommercialContaminants

Contaminants, Erosion,
Masking**PROCESS INDUSTRIES**Synthetic Fuel Production
Chemical Process (air production)Commercial
Commercial

Contaminants





WHO WE ARE

The Manufacturers of
Emission Controls
Association (MECA) is
an association of
manufacturers of air
pollution control
equipment for mobile
and stationary sources.
For stationary source
applications, MECA
member companies
manufacture catalytic
controls for gaseous
emissions and filters for
particulate control.

MECA