

MATERIAL SAFETY DATA SHEET

Product Name: Ozone (Ambient Air Gas)

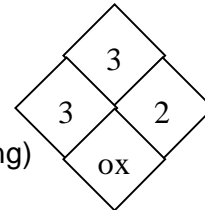
Date Prepared: 07-Jan-07

PRODUCT AND COMPANY IDENTIFICATION

Supplier:
Mar Cor Purification
14550 28th AVE N.
Plymouth, Minnesota 55447
Emergency Telephone:
(880)622-2080
800/424-9300 CHEMTREC
Common Name: Ozone
Chemical Name: Triatomic Oxygen

NFPA Codes:

Health: 3 (warning)
Fire: 3 (warning)
Reactivity: 2 (warning)
Special: Oxidizer
PPE: None



** Personal Protective Equipment is not required if OSHA PEL is not exceeded (<0.1 ppm, 8hours, measured by sampling).*

MATERIAL COMPOSITION

| Hazardous Components (0.1% or greater for respiratory) | CAS# | % | OSHA PEL | ACGIH TLV | Other Limits Recommended |
|---|------------|------|-------------------------------------|---|--------------------------------|
| Ozone (O ₃) | 10028-15-6 | 100* | 0.1 PPM (0.2 mg/m ³) | 0.1 PPM (c) (0.2 mg/m ³) | 0.3 PPM STEL, 5 PPM IDLH |

* Equipment emits ozone at 1-4% concentration by weight for ambient air feed gas and 5-15% for oxygen.

PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling point: -170°F (-112°C)

Specific gravity: 1.614

Vapor pressure: > 1 atm
(mmHg & temp)

Melting point: -313°F (-192°C)

Vapor density: 1.65
(air = 1)

Evaporation rate: Not Applicable
(H₂O= 1)

Solubility in water: Almost insoluble
[0.0003 g/100 ml at 68°F (20°C)]

Water reactive: Not Applicable

pH: Not Applicable

Appearance and Odor: Colorless gas with pungent odor detectable at 0.01 to 0.04 PPM, sharp disagreeable odor at 1 PPM

FIRE AND EXPLOSION HAZARD DATA

Flash point: Not Applicable

Auto-ignition temp: Not Applicable

Flammability limits in air % by volume:

Lower Explosive Limit (LEL): Not Applicable

Upper Explosive Limit (UEL): Not Applicable

Special firefighting procedures: Ozone is an oxidizer and will accelerate combustion; use media appropriate for extinguishing surrounding materials.

Unusual fire and explosion hazards: Can react explosively with readily oxidizable substances and reducing agents. It may present dangerous fire hazards when exposed to aniline, diethyl ether, hydrogen iodide, nitrogen oxides, organic liquids, lithium aluminum hydride, metal hydrides, nitroglycerin, hydrazine, stilbene, ammonia, arsine, nitrogen, and phosphine. Ozone is also incompatible with acetylene, alkyl metals, citronellic acid, fluoroethylene, hydrogen, and tetramethyl ammonium chloride. Ozone reacts with alkenes to form peroxides that are often explosive. Gelatinous explosive ozonides are formed with benzene and other aromatic compounds. Ozone may also react with bromine and hydrogen bromide. Combustion is also possible if high concentrations of ozone off-gas are exposed to carbon-containing ozone destruct devices.

STABILITY AND REACTIVITY DATA

Stability: Unstable. Ozone gas rapidly decomposes to oxygen (O₂).

Reactivity: Reacts with any oxidizable organic or inorganic material. Ozone reacts with alkenes and other unsaturated organic compounds to form ozonides, many of which are highly unstable and explosive.

Conditions to avoid: Avoid contact with oxidizable materials, powerful reducing agents, and heat or flame.

Hazardous decomposition: None.

HEALTH HAZARD DATA

Emergency overview: Ensure adequate ventilation has been engineered in the area where the ozone generation equipment is located. Exposure to ozone may cause headaches, irritation of the eyes, throat and mucous membranes, coughing, dizziness, and tightness in the chest.

Potential health effects:

Eye: Irritating to eyes.

Skin: Not an expected route of entry.

Ingestion: Not an expected route of entry.

Inhalation: Irritating to respiratory system. May cause respiratory complications, coughing, difficulty breathing, chest pain, headache, pulmonary edema, and bronchial pneumonia.

Chronic/Carcinogenicity:

NTP: Not listed

OSHA: Not listed

IARC: Not listed

Medical Restrictions: People with asthma, allergies, respiratory disorders, or emphysema may be further aggravated by exposure to ozone.

FIRST AID MEASURES

Eyes: In the event of irritating eye contact, promptly wash eyes with copious amounts of water for 15 minutes (lifting upper and lower lids occasionally) and obtain medical attention.

Skin: Not Applicable

Ingestion: Not Applicable

Inhalation: Respiratory protection may be necessary in the event of an accidental release of ozone. An ozone leak can easily be detected by its characteristic pungent odor. If a large amount of ozone is inhaled, move the person to fresh air and seek medical attention immediately.

EXPOSURE CONTROL/PERSONAL PROTECTION

Personal protection:

Eyes/Face: None required

Skin: None required

Respiratory: Equipment is not required if OSHA PEL is not exceeded (0.1 PPM, 8 hours, measured by sampling).

Handling: Not Applicable

Storage: Ozone cannot be stored.

DISPOSAL INFORMATION

RCRA hazardous waste: Not Applicable

Waste disposal: Ozone rapidly decomposes to form oxygen (O₂). Small to moderate amounts of excess ozone can be vented to a fume hood or other exhaust system. A 1% off-gas at 10 cfm or more is considered to be a large amount of ozone.

OTHER

Prepared by: Mar Cor Purification Regulatory Affairs Department (484) 991-0220.

The above information and recommendations are believed accurate and reliable. Because it is not possible to anticipate all conditions of use, additional safety precautions may be required.

User responsibility: Each user should read and understand this information and incorporate it into individual site safety programs in accordance with applicable hazard communication standards and regulations.