

NITROGEN DIOXIDE

0930
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CAS No: 10102-44-0
RTECS No: QW9800000
UN No: 1067
EC No: 007-002-00-0

Nitrogen peroxide
(cylinder)
NO₂
Molecular mass: 46.01

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Not combustibile but enhances combustion of other substances.	NO contact with combustibles.	In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			In case of fire: keep cylinder cool by spraying with water.

EXPOSURE		STRICT HYGIENE!	IN ALL CASES CONSULT A DOCTOR!
Inhalation	Burning sensation. Sore throat. Cough. Dizziness. Headache. Sweating. Laboured breathing. Nausea. Vomiting. Shortness of breath. Weakness. Symptoms may be delayed (see Notes).	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.
Skin	Redness. Pain. Skin burns.	Protective gloves. Protective clothing.	First rinse with plenty of water, then remove contaminated clothes and rinse again. Refer for medical attention.
Eyes	Redness. Pain. Severe deep burns.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Do NOT absorb in saw-dust or other combustibile absorbents. Remove vapour with fine water spray. Neutralize used water with chalk or soda. Gas-tight chemical protection suit including self-contained breathing apparatus.	T+ Symbol R: 26-34 S: (1/2-)9-26-28-36/37/39-45 Note: 5 UN Hazard Class: 2.3 UN Subsidiary Risks: 5.1 and 8

EMERGENCY RESPONSE	STORAGE
Transport Emergency Card: TEC (R)-20S1067 NFPA Code: H3; F0; R0; OX	Ventilation along the floor.

IMPORTANT DATA

Physical State; Appearance

REDDISH- BROWN GAS OR BROWN OR YELLOW LIQUID, WITH PUNGENT ODOUR.

Physical dangers

The gas is heavier than air.

Chemical dangers

The substance is a strong oxidant and reacts violently with combustible and reducing materials. Reacts with water to produce nitric acid and nitric oxide. Attacks many metals in the presence of water.

Occupational exposure limits

TLV: 3 ppm as TWA, 5 ppm as STEL, A4, (ACGIH 2003).
MAK: 5 ppm, 9.5 mg/m³. Peak limitation category: I (DFG 2002).

Routes of exposure

The substance can be absorbed into the body by inhalation.

Inhalation risk

On loss of containment, a harmful concentration of this gas in the air will be reached very quickly.

Effects of short-term exposure

The substance is corrosive to the skin and the respiratory tract. Inhalation of the gas or the vapor may cause lung oedema (see Notes). Exposure far above the OEL may result in death. The effects may be delayed. Medical observation is indicated.

Effects of long-term or repeated exposure

The substance may have effects on the immune system and lungs, resulting in decrease in resistance to infection. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

PHYSICAL PROPERTIES

Boiling point: 21.2°C

Melting point: -11.2°C

Relative density (water = 1): 1.45 (liquid)

Solubility in water: reaction

Vapour pressure, kPa at 20°C: 96

Relative vapour density (air = 1): 1.58

ENVIRONMENTAL DATA

NOTES

The commercial brown liquid under pressure is an equilibrium mixture of nitrogen dioxide and the colourless nitrogen tetroxide. Non irritant concentration may cause lung oedema.

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.

Rinse contaminated clothes (fire hazard) with plenty of water.

Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

ADDITIONAL INFORMATION

LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible for the use which might be made of this information