

Nitrous oxide



laughing gas

Marking

CAS

Characterization acc. ADR

Cylinder Marking

10024-97-2
UN 1070 NITROUS OXIDE, 2.2
(5.1), (C/E)



Shoulder color: blue

Essential properties

liquified gas, heavier than air, colorless, oxidizing, narcotic

Symbols of risks



Physical Properties

molecular weight	44,013 kg/kmol
gas density at 0 °C and 1,013 bar	1,9781 kg/m ³
density ratio to air	1,5299
vapour pressure at 20 °C	50,599 bar

For additional safety information see safety data sheet *-N2O-093A

Valves / Manifolds

Valve connection

acc. to national regulations

Recommended Manifolds

Spectrolab FM 51/FM 52exact
Spectrocem FE 51/FE 52exact



Specification / receptacles				
		Nitrous oxide 2.0	Nitrous oxide 2.5	
Composition				
N ₂ O	≥	99	99.5	Vol.-%
Impurities				
O ₂ / N ₂ / Ar	≤	-	5,000	ppmv
H ₂ O	≤	-	10	ppmv
Cylinder / Contents				
F 10 7kg		-	7.0	kg
F 10 8kg		8.0	-	kg
F 40 30kg		30.0	30.0	kg
F 50 37,5kg		37.5	37.5	kg

Remarks

Applications:

oxidizing agent in atomic absorption spectrometry (AAS)

oxidizer in rocket propellants

propellant for whipped cream (food industries)

MESSER 
Gases for Life

Messer Group GmbH

Messer-Platz 1

65812 Bad Soden

<https://www.messergroup.com>

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Description

Colourless, oxidizing, liquified gas slightly sweet taste and pleasant smell. In a mixture with air-oxygen intoxicant and narcotic. Forms explosive mixtures with hydrocarbons, ammonia, carbon monoxide, carbon disulphide, fluorine, phosphine, sulphur dioxide, hydrogen sulphide. No contact to oil, grease, glycerine, carbon and flammable organic substances!

Materials

Cylinders and Valves: any usual materials.
Danger of stress corrosion cracking caused by humidity at brass or copper(-alloys).
Keep fittings and pipes free from oil and grease!
Seals: PTFE, PCTFE

Physical Properties			
molecular weight	44,013 kg/kmol	vapour pressure at 20°C	
critical point		gas density at 0°C and 1,013 bar	1,9781 kg/m ³
temperature	309,56 K	density ratio to air	1,5299
Pressure	72,4 bar	gas density at 15°C and 1 bar	1,848 kg/m ³
density	0,452 kg/l	conversion factor	
triple point		liquid at Ts to m ³ gas (15°C, 1 bar)	
temperature	182,34 K	virial coefficient	
Pressure	0,8784 bar	Bn at 0°C	-7,18*10 ⁻³ bar ⁻¹
boiling point		B30 at 30°C	-5,08*10 ⁻³ bar ⁻¹
temperature	184,69 K; -88,5 °C	gaseous state at 25°C and 1 bar	
liquid density	1,281 kg/l	specific heat capacity cp	0,8795 kJ/kg K
evaporation heat	376 kJ/kg	thermal conductivity	173*10 ⁻⁴ W/m K
		dynam. viscosity	14,98*10 ⁻⁶ Ns/m ²