



Liquid Oxygen, Process Quality



Application

The process quality of liquid oxygen is used within specialised industrial areas. Oxygen is used instead of air, so that chemical reactions such as chemical synthesis can be considerably accelerated.

Within biological processes the speed of the process (e.g. fermentation), just like the process can be controlled by the means of the oxygen-supply. Furthermore oxygen is used in the production of ozone for industrial use.

Physical properties

Liquid oxygen is a slightly bluish liquid, which is a little heavier than water. As a gas it is colour- and tasteless as well as odourless. Oxygen is not inflammable in itself, but the substance will greatly nourish fire. Atmospheric air contains 20,94 vol. % oxygen and oxygen gas is approx. 1,1 times as heavy as air, and is easily soluble in both water and alcohol. Oxygen is strongly oxidizing and reacts intensely in connection with inflammable substances, during heat development, ignition or explosion. It makes connections in the form of oxides with almost all elements except halogens, noble gases and noble metals. Oxidation is attended by emission of heat and light, and many reactions demand the presence of water or are accelerated by the help of a catalyst. Liquid oxygen is produced from air via distillation in an air separation system.

Specification

Material No. 101875. Product name: Liquid Oxygen, Process Quality

| Purity | Impurities |
|--|--|
| Oxygen (O ₂) ≥ 99,6 vol. % | Water (H ₂ O) ≤ 10 ppm |
| | Hydrocarbons (C _n H _m) ≤ 50 ppm |
| | Carbon Dioxide (CO ₂) ≤ 300 ppm |

The specifications are exclusively valid for deliveries in pressure tanks.

Physical data

| Gas type | Boiling point | Latent heat of vaporization | Specific heat capacity (15 °C) |
|------------------------------|---------------|-----------------------------|--------------------------------|
| Oxygen, O ₂ , LOX | -183 °C | 213 kJ/kg | 0,92 kJ/kg K |

Conversion factors

1 nm³ = 1,148 litre = 1,311 kg
 1 litre = 0,871 nm³ = 1,142 kg
 1 kg = 0,763 nm³ = 0,876 litre
 1 nm³ = 1 m³ at 15 °C and 0,98 KPa.

Critical values

Critical temperature -118,6 °C
 Critical pressure 5043 KPa
 Critical density 0,436 kg/l

The litre-designation is used for gas in its liquid phase.

Linde Gas
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