

Sersolv® OT25

High-Precision Cleaning Solvent

Industrial grade – Aeronautics – Space – Cleanroom – Oxygen Systems

Presentation

The **Sersolv® OT25** has been developed to meet the demands of the high-precision cleaning market. With excellent solvent power, it is safe to use and stable, flammable and environmentally friendly

- Zero Ozone Depletion Potential (ODP)
- Low Global Warming Potential (GWP = 2.5)

Does not contain fluorinated greenhouse gases (*according to Annex 1 of EU Regulation 517/2014*)

The Sersolv OT25 is an azeotropic formulation. This makes it an effective solvent while maintaining high compatibility with most of the plastic and elastomer materials. It is perfectly compatible with all metals and most minerals.

It's recommended for vapor phase cleaning, particularly suitable for complex surfaces and difficult contaminants.

It advantageously replaces :

- Formulations based on halogenated solvents such as:
 - **Chlorinated substances** (PER or PCE – perchloroethylene, TRI or TCE – trichloroethylene, DMC – dichloromethane, T111 – trichloroethane)
 - **Chlorofluorocarbons (CFCs)** (CFC-113 – trichlorotrifluoroethane and CFC-11 – trichlorofluoromethane)
 - **Hydrochlorofluorocarbons (HCFCs)** (HCFC-141b – dichlorofluoroethane and HCFC-225 – dichloropentafluoropropane)
 - **Hydrofluorocarbons (HFCs)** (HFC-365 pentafluorobutane, HFC-4310 decafluoropentane, etc.)
 - **Hydrofluoroethers (HFEs)** (HTF or HFE-7100 or HFC-449 methyl-nonafluorobutyl ether, HFE-7200 or HFC-569, etc.)
 - **Perfluorocarbons (PFCs)**
- Semi-aqueous or detergent mixtures systems
- Hydrocarbon, petroleum or synthetic solvents (ketone, glycol ethers, aromatics...)



Key Features & Benefits

Superior cleaning performance due to excellent surface tension and solvent capacity.

Fast drying, due to its optimal boiling point (29°C), allows parts to be handled and used immediately after cleaning.

Its high solvency capacity increases productivity by reducing equipment downtime associated with solvent changes

Given these physicochemical characteristics, it can also be used as a substitute for older products in complex equipment such as vacuum sealers, and it can be implemented in relatively simple and less expensive installations.

The product remains stable in composition throughout its use (100% azeotropic formulation) which allows its continuous recycling and reuse, reduces the cost of the environmental footprint

Maintenance-free, no stabilizers required, so no special monitoring is required,

Surfactant-free, eliminates additional rinsing steps for residue-free cleaning Non-flammable

Low odour and toxicity

Excellent environmental profile: ODP-free, Low GWP (2.5; EU 517/2014 compliance)

Easy to use



Typical Applications

- Removal of oils and greases
- Precision cleaning
- Oxygen-system cleaning
- Silicone removal
- Vapor-phase degreasing
- Cold cleaning
- Cleaning benches
- Heat-transfer fluids and Heat transfer fluids for cooling systems
- Transport and deposition fluids
- Heat piping, steam chambers, etc.

TABLE 1.

Main Properties

Properties	Units	Sersolv® OT25	Solstice® PF-C	Solkane® 365
Boiling point	°C	29.1	19	40.2
Liquid density	g/cm ³	1.33	1.26	1.27
Vapour density (saturated)	kg/m ³	5.09	N/A	6.98 (2)
Surface tension	dyn/cm	16.4	12.7	N/A
Vapor pressure	kPa	86.3	126	53 (2)
Viscosity (Viscosity)	cP	0.33	N/A	0.45 (2)
Freezing point	°C	LT;-80	N/A	-35
Molecular weight	g/mol	139.6	130	148.1
Kauri-butanol index		20	25	13
Latent Heat Capacity (1)	kJ/kg -K	1.19	N/A	N/A
Thermal conductivity of the liquid	mW/m-K	84,2	N/A	N/A

All compiled data was provided from publicly available sources.

(1) Values shown are 25°C,

(2) declared values are 20°C unless otherwise noted. N/A refers to no available reference data

Cleaning Process

The **Sersolv® OT25** can be used in a very wide range of equipment

It's ideal for use in oxygen system cleaning, for vapor phase degreasing and ultrasonic cleaning.

Use on a cleaning bench, with continuous recycling by distillation.

TABLE 2.

Variation of Vapor Pressure and Density and Density as a Function of Temperature



Temperature (°)	Vapour pressure (kPa)	Density (g/cm ³)
0	30.30	1.38
10	47.44	1.36
20	71.57	1.33
30	104.56	1.31
40	148.47	1.28
50	205.59	1.26
60	278.42	1.23



TABLE 3.

Examples of types of contaminants removed by Sersolv[®] OT25 :

- Cutting oils
- Mineral oils
- Gear oils
- Heavy greases
- Fluorinated oils
- Silicone oils
- Hydraulic oils
- Waxes
- Vacuum oils
- Stamping oils
- Refrigerant oils
- Silicone greases

Oxygen System Cleaning

Oxygen-system cleaning requires solvents with excellent degreasing properties, meaning a high cleaning efficiency (KB value > 20). These solvents must self-evaporate from the cleaned parts, therefore have a boiling point between 25°C and 65°C is essential. They must be non-corrosive and compatible with commonly used metallic and non-metallic materials. They must also be oxygen-compatible, meaning they contain little to no non-volatile residue (low particle content, NVR). Finally, they must be non-flammable, that is, without a flash point and without flammability limits.

Sersolv[®] OT25 meets all its requirements in the field of "oxygen cleaning", as shown in Table 5.

TABLE 5.

Oxygen Cleaning Requirement and Sersolv[®] OT25

Parameter	Requirements for cleaning oxygen systems	Sersolv [®] OT25
Kb Index	20	20
Boiling Temperature	>25°C and <65°C	29.1 °C
Flash point	None	None
Flammability limit	None	None
Oxygen Compatibility	Very low particulate matter and no non-volatile residue	See Specifications Table
Material Compatibility	Compatible with metals and non-metals used	See the material compatibility section

Specifications

Property	Sersolv [®] OT25
Humidity *	<=30 ppm
Non-volatile residue	<=10 ppm
Appearance	Clair, colorless
Total Purity (by mass)	> 99.90%
Acidity vs. Chloridric Acid	< 1.0 ppm
Chlorine ion	
Particulate matter	< = 2.00 mg/L

* < 50 ppm in 19L interior varnished steel kegs.

Compatibility

TABLE 4.

Compatibility of plastics and elastomers

Compatible	Incompatible
Polyethylene	Silicone
Polypropylene	Hypalon [®]
Teflon [™]	EPDM Rubber
Polyester	Viton [™]
Nylon	Hi N
FEP/PFA	Fluorosilicone
Halar	Polystyrene
KynarP	Polycarbonate
Teflon [™]	ABS
Kalrez [®]	Polyacrylate
Ryton	Acrylic (PMMA)
PTFE w/Neoprene	Polysulfone
PTFE w/EPDM	
Parafluor, perfluoro	

The wide variety of materials and their compositions, the different types of plasticizers, and the various applicable treatments make it necessary to perform specific tests to verify compatibility with any new material before using the product.

Health, Safety and Environment

TABLE 5.

Safety, Toxicity, and Environmental Properties

Sersolv[®] OT25 has no flash point and no vapor ignition in open-cup testing.

Sersolv[®] OT25 is classified as a non-flammable liquid.

Safety, toxicity and environmental data are presented in Table 5.

(1) ASTM D1310, (2) ASTM D56

Property	Units	Sersolv [®] OT25
Flash point (open cup)	-C	No flash point
Flash point (open cup)	-C	None
Flammability limit in air		
Low Limit	% vol.	None
High Limit	% vol.	None
Stratospheric ozone depletion potential (ODP)		-
Global warming potential (GWP)	Zero	-2.5
Volatile Organic Compound (VOC)	g/l.	335
Exposure limit value, 8-hr TWA	ppm	425

Storage and Handling

Sersolv[®] OT25 is thermally stable and does not decompose, nor does it oxidize or degrade during storage. It is recommended to store packaging in a clean, dry area, and protect them from frost and excessive temperatures (>48°C).

When stored properly, unopened packaging has an indefinite shelf life.

The packaging capacities for the Sersolv[®] OT25 are the 200l inner varnished steel drums, 19l varnished steel kegs and 20l HDPE jerry cans.

The use of compatible gloves and protective goggles are recommended when handling the product.