Petroferm

Technical Data Sheet

LENIUM®* CP

Vapor Degreasing/Cold Cleaning Fluid

For Sensitive Plastics and Medical Device Applications

Description

LENIUM CP is a ternary azeotrope of 3M™ HFE-7100, *n*-Propyl bromide, and isopropanol. The product is ideal for cleaning sensitive plastic components and medical parts as well as removing oils, silicones, particulate, and light ionic residues. The fluid also has the ability to remove other hydrocarbons and fingerprints without attacking plastic. It will temporarily swell silicone and urethane tubing. LENIUM CP is used for precision cleaning of metal components to remove similar soils and can be used to replace HCFC-141b, 1,1,1-trichloroethane, CFC-113, and other ozone depleting solvents.

Applications

LENIUM CP has excellent materials compatibility with sensitive plastic components, such as polycarbons and ABS. The solvent has been used to successfully clean polyurethane medical tubing, catheter wire, Tecoflex and Nusil-silicone tubing, silastic rubber pieces, titanium components, Lucite SAR II (acrylic), GE MR10 (polycarbonate), Sheffield Hyzod AR (polycarbonate), PVC coatings, and Rexene polypropylene dilators. The product can be used to remove a wide variety of soils including: fingerprints, mineral oils, silicone oils, machining oils, heavy grease, waxes, and particulate.

The solvent has very similar swell properties to that of CFC-113. Table 1 includes data on the amount of swell that can be expected from LENIUM CP.

Table 1. Swelling of Silicone Tubing[1] (% swell and % weight gain)

Silicone Tube Swelling	LENIUM CP	CFC-113
Diametrical Swell	30	30
Linear Swell	21	42
Weight Gain	75	221

[1] Measurements performed at 25°C.

* LENIUM is a registered trademark of Petroferm Inc.

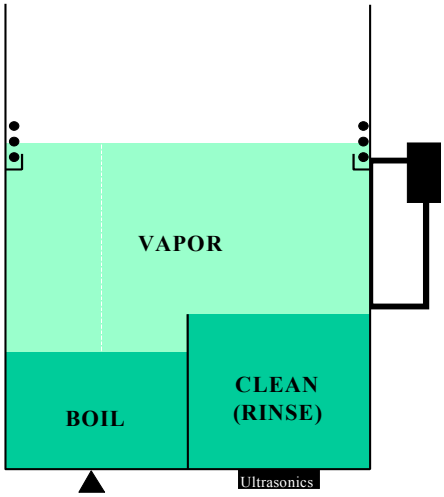
Typical Properties

Table 2.

Appearance	Clear to light yellow liquid
Flash Point (Pensky-Martens Closed Cup)	None
Boiling Point	130°F (54°C)
Specific Gravity @ 25°C	1.43 ± 0.01
Odor	Mild

Process

LENIUM CP is most efficiently used in a vapor degreasing process, but may also be used for hand/cold cleaning applications. This product can be used as a benchtop hand cleaning cleaner to replace HCFC-141b, CFC-113, and other flammable hand cleaning solvents.



LENIUM CP can be used in existing vapor degreasing equipment (batch or in-line), but emission control retrofits are recommended to reduce vapor losses. If existing equipment is utilized, it is necessary to adjust temperature control settings. Alcohol may be extracted from the system if large quantities of water are introduced to the vapor degreaser. Desiccant drying is recommended in the condensate return loop to prevent alcohol loss.

Additionally, parts may be soaked in a static tank, but performance is improved if they are agitated in the cleaning agent. Pumps are used to circulate the cleaning agent over the submerged parts or ultrasonics are employed.

Compatibility

LENIUM CP is compatible with most types of plastics, elastomers, and metal encountered in medical devices and aerospace/aircraft components.

Compatibility tests should involve exposing parts to the solvent at the boiling point for durations of at least two times the actual cleaning cycle. In determining compatibility, it is always wise to use an actual cleaning process as well as the actual parts, even if components are listed as compatible.

Table 3. Effects of LENIUM CP on Plastics and Elastomers

Plastic / Elastomer	Percent (%) Weight Change			Percent (%) Thickness Change		
	120°F (49°C) 1 Hour	120°F (49°C) 1 Month	Control[1] 150°F (66°C) 1 Month	120°F (49°C) 1 Hour	120°F (49°C) 1 Month	Control[1] 150°F (66°C) 1 Month
ACETAL (Delrin, Celcon)	0.01	0.48	0.32	0.00	0.00	1.90
ACRYLIC (Lucite, Plexiglas)	0.06	82.15	0.15	1.52	21.21	0.60
ACRYLONITRILE	3.03	49.72	0.04	1.54	27.69	1.55
BUNA N	7.41	10.22	0.11	3.45	3.45	3.57
BUNA S	17.91	19.44	-0.06	-27.27	6.06	4.35
BUTYL RUBBER	3.69	9.51	-0.17	1.54	3.08	3.55
CPVC	0.07	4.34	-0.03	0.00	0.00	2.70
EP RUBBER	10.11	-12.49	-0.23	4.62	-6.15	-1.88
EPDM	10.62	-23.65	-0.63	0.00	-14.29	6.25
EPICHLOROHYDRIN	19.33	-18.22	-0.70	4.55	-9.09	6.96
FIBERGLASS	0.05	1.57	-0.61	0.00	2.78	1.71
FLUOROELASTOMER	10.99	-23.27	-0.41	-25.71	-17.14	4.85
G-10 EPOXY GLASS	0.00	0.01	-0.35	0.00	0.00	2.42
HDPE	0.22	2.95	-0.02	-1.59	0.00	0.32
Hypalon®	12.27	-5.80	-2.22	5.00	0.00	2.04
NEOPRENE	7.19	-14.76	-0.78	1.69	-11.86	2.73
NYLON	-0.02	-0.08	-2.55	-1.54	0.00	1.90
PBT (Valox, Gafite, Celanex)	0.00	0.08	-0.21	0.00	0.00	1.11
POLYACRYLATE	17.21	-17.71	NA	4.00	-12.00	NA
POLYAMIDE	-0.03	-0.20	-0.3	0.00	0.00	0.00
POLYCARBONATE (Lexan)	0.17	7.34	-0.18	0.00	6.45	0.32
POLYETHERIMIDE (Ultem)	-0.03	-0.04	-0.64	0.00	0.00	2.56
POLYETHYLENE (LD)	0.91	2.81	NA	1.61	1.61	NA
POLYIMIDE NYLON	-0.02	-0.18	NA	0.00	0.00	NA
POLYPHENYLENE OXIDE (Noryl)	0.20	23.14	-0.05	-1.54	23.08	1.92
POLYPROPYLENE	0.30	6.44	-0.02	0.00	1.61	2.67
POLYSTYRENE	3.60	31.17	-0.03	-1.54	Stopped	1.58
POLYSULFIDE	11.13	-22.03	-0.44	3.70	-11.11	5.51
POLYSULFONE	-0.01	0.62	-11.00	0.00	0.00	3.58
POLYURETHANE	3.48	10.43	-0.89	1.61	3.23	2.33
PVC, WHITE	-0.06	2.46	-0.09	0.47	0.47	0.68
PVC, CLEAR	0.01	4.95	-0.10	0.00	3.08	4.53
PVDF	0.01	0.10	NA	0.60	0.40	NA
SILICONE	44.56	-3.52	-0.06	12.31	-1.54	3.72
Teflon®	0.03	0.65	-0.01	0.00	1.52	1.15
TYGON	7.09	-2.99	-0.46	7.14	3.57	5.67
UHMW POLYETHYLENE	0.22	3.08	-0.01	1.56	1.56	2.24
Viton® A/B	6.53	17.16	-0.22	3.12	6.25	4.19
Viton® G/F	16.75	6.33	-0.63	14.04	0.00	3.10

1. Effect of temperature only. Sample kept at 150°F (66°C) with no solvent.

Hypalon and Viton are registered trademarks of DuPont Dow Elastomers. Teflon is a registered trademark of DuPont.

Environmental and Regulatory

Table 4.

Ozone Depletion Potential (ODP)	0.013 - 0.018*
Global Warming Potential (GWP)	Zero
Volatile Organic Compound (VOC)	25%
Significant New Alternatives Program (SNAP)	Approval Pending
Hazardous Air Pollutants (HAP)	No
National Emission Standards for Hazardous Air Pollutants (NESHAP)	Not regulated
Superfund Amendments and Reauthorization Act (SARA)	Not regulated
Resource Conservation and Recovery Act (RCRA)	Not regulated

* Source: US EPA. ODP may be greater at locations near the equator.

Safety and Toxicity	Please see Material Safety Data Sheet for detailed information.
Disposal	Petroferm recommends contacting your current or local environmental service company for disposal of this product. The most common and economical method of disposal is incineration of used material in compliance with all applicable government regulations. Used LENIUM CP can also be delivered to a solvent reclaimer.
Packaging	LENIUM CP is available in 5-gallon pails (55lb/25 kg) and 55-gallon drums (600 lb/272 kg). Samples are available in one-quart and one-gallon containers.
Storage	LENIUM CP should be stored in the original container, preferably in a cool, ventilated, fire-resistant building.
Shelf Life	The shelf life for this product is indefinite when it is stored in its original, sealed container at room temperature. However, the product should be inspected after the designated date on the product label (twenty-four months from the date of manufacture) prior to customer use.

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Petroferm products are available worldwide.