

SAFETY DATA SHEET

ACCORDING TO EC-REGULATION 1272/2008 (CLP/GHS).

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1	Product identifier	
	Product Name	Perfluorodecaline
	Chemical Name	Octadecafluorodecahydronaphtalene (mixture of cis- and trans-isomers)
	Trade name	Perfluorodecaline
	Alternative names	Perfluorobicyclo [4.4.0]decane, perfluorodecahydronaphtalene (mixture of cis- and trans-isomers), Perflunafene
	Formula	C ₁₀ F ₁₈
	EINECS No.	206-192-4
	REACH Pre-registration No	05-2114650550-56-0000
	CAS No.	306-94-5
1.2	Relevant identified uses of the substance or mixture and uses advised against	
	Identified use(s)	Perfluorodecaline is used as an inert carrier in pharmaceutical reactions and analyses, gas carrier, blood substitutes, growth medium for microorganisms, perfusion medium for transplants storage, and one of major components of cosmetics.
	Uses advised against	None assigned.
1.3	Details of the supplier of the Safety Data Sheet	
1.3.1	Manufacturer	«HaloPolymer Kirovo-Chepetsk», LLC per. Pozharny, 2, 613040, Kirovo-Chepetsk, Kirov Region, The Russian Federation.
	Telephone	+7-83361-9-4281
	Fax	+7-83361-9-3594
	Website	www.halopolymer.com
1.3.2	Only representative of a non-Community manufacturer	URALCHEM Assist GmbH Johannssenstrasse 10 30159, Hannover, Germany
	Telephone	+49-511/45 99 444
	Fax	+49-511/45 99 446
	E-mail	info@uralchem-assist.de
1.4	Emergency telephone number	
	Manufacturer/supplier:	+7-83361-9-4250 [24 hours.]
	Emergency number	
	Europe	112
	Great Britain	+44 (0) 203 394 9870 (24/7)
	The USA	+1-877 271 7077
		Consult the relevant national official advisory body if necessary

2. SECTION 2: HAZARDS IDENTIFICATION

Classification and labeling have been performed according to Regulation (EC) No. 1272/2008 (CLP/GHP)

2.1	Classification of the substance	
2.1.1	Regulations (EC) No. 1272/2008	Hazard class and category: Causes skin corrosion (necrosis)/skin irritation (Skin Irrit. 3) Causes serious eye damage/eye irritation (Eye Irrit. 2);
2.2	Labelling	
	Labelling according to Regulations (EC) No.1272/2008 [CLP/GHS]	
	Hazard Pictogram:	None.
	Signal word:	Warning
	Hazard statements:	H316: Causes mild skin irritation; H320: Causes eye irritation;
	Precautionary statements	P264: Wash hands thoroughly after handling; P305+P351+P338: IF IN EYES: Rinse cautiously with water for several

- minutes. Remove contact lenses, if present and easy to do. Continue rinsing;
P332+P311: If skin irritation occurs: Call a doctor;
P337+P311: If eye irritation persists: Call a doctor;
- 2.2 Other hazards**
Low-hazardous product by human organism acute effect. Slight irritation of skin and eye mucous membranes. Toxic and irritating vapors are formed at combustion and/or thermal decomposition (see Section 5.2).
- 2.3 Additional Information**
See Also Section: 15.1.1.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product identifier type in accordance with Article 18(2) of Regulation (EC) No 1272/2008	Identifier number	Identification name	Weight % content (or range)	EC Number
CAS number	306-94-5	Octadecafluorodecahydronaphthalene (mixture of cis- and trans-isomers)	> 93	206-192-4
CAS number	374-60-7	Undecafluoro (nonafluorobutyl)cyclohexane	< 5	206-777-4

3.2 Mixtures
Not applicable.

3.3 Additional Information
None.

4. SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Inhalation

IF INHALED: Decomposition products: Remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms develop, obtain medical attention.

Skin Contact

At skin contact, wash off with water and soap

Eye Contact

Wash eyes with plenty of water

Ingestion

Abundant drinking, sweet tea, activated carbon, saline purge. If necessary seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

AT INHALATION: weakness, headache, reduction of motion activity.
AT SKIN CONTACT: redness.

AT EYE CONTACT: tearing, mucous membrane redness.

AT SWALLOWING: weakness, nausea, vomiting.

4.3 Indication of immediate medical attention and special treatment needed

No special requirements

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media

Extinguish with carbon dioxide, dry chemical, foam or waterspray. None.

Unsuitable Extinguishing Media

5.2 Special hazards arising from the substance or mixture

May decompose in fire evolving toxic fume. The product may decompose if heated to temperatures above (°C): 400.
Hazardous Decomposition Product(s): carbon oxides, hydrogen fluoride, fluorine and fluorophosgene

5.3 Advice for fire-fighters

Evacuate the area. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Chemical protection suit.

5.4 Additional Information

Keep containers cool by spraying with water if exposed to fire.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

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|-----|--|--|
| 6.1 | Personal precautions, protective equipment and emergency procedures | Ensure adequate ventilation. Shut off leaks if without risk. Ensure suitable personal protection during substance removal. |
| 6.2 | Environmental precautions | Do not allow to enter drains, sewers or watercourses. |
| 6.3 | Methods and material for containment and cleaning up | Collect spilled substance and transfer into a lidded container for disposal. |
| 6.4 | Reference to other sections | See Also Section: 8 and 13. |
| 6.5 | Additional Information | None. |




7. SECTION 7: HANDLING AND STORAGE

- | | | |
|-----|---|---|
| 7.1 | Precautions for safe handling | Provide adequate ventilation. Do not breathe fumes/vapour from heated product. Keep containers in a clean, cool and dry area away from heat sources. Do not eat, drink or smoke when using this product. Wash hands and exposed skin after use. |
| 7.2 | Conditions for safe storage, including any incompatibilities | Tightly closed containers shall be stored in clean and dry places, at minimal distance of 1 m from heating systems. |
| | Storage Temperature | Stable under normal conditions. |
| | Storage Life | Metals: lithium, sodium, potassium, calcium, barium. |
| | Incompatible materials | Perfluorodecaline is used as an inert carrier in pharmaceutical reactions and analyses, gas carrier, blood substitutes, growth medium for microorganisms, perfusion medium for transplants storage, and one of major components of cosmetics. |
| 7.3 | Specific end use(s) | |

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 **Control parameters**
8.1.1 **Occupational Exposure Limits**

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note:
Octadecafluorodecahydronaphtalene (mixture of cis- and trans-isomers)	306-94-5	-	-	-	-	-

- | | | |
|-------|---|--|
| 8.1.2 | Biological limit value | No information available. |
| 8.1.3 | PNECs and DNELs | No information available. |
| 8.2 | Exposure controls | |
| 8.2.1 | Appropriate engineering controls | Provide adequate ventilation, including appropriate local extraction. |
| 8.2.2 | Personal protection equipment | |
| | Eye/face protection | Wear protective eyewear (goggles, face shield, or safety glasses). |
| |  | |
| | Skin protection | Hand protection: Protective gloves.
Body protection: Wear suitable protective clothing. |
| |  | |
| | Respiratory protection | Where engineering controls are not fitted or inadequate wear suitable respiratory protective equipment. During thermal processing: A suitable mask with filter type A (EN141 or EN405) may be appropriate. |
| |  | |
| | Thermal hazards | Use gloves with insulation for thermal protection, when needed.
Wear insulating gloves EN407 (heat). |
| 8.2.3 | Environmental Exposure Controls | Avoid release to the environment. |

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Information on basic physical and chemical properties	
	Appearance	Liquid
	Color	Transparent, colorless
	Odor	Odorless.
	Odor Threshold (ppm)	Not established.
	pH (Value)	Not established.
	Melting Point (°C) / Freezing Point (°C)	(- 10) – (- 6.6)
	Boiling point/boiling range (°C)	142 - 143.8
	Flash Point (°C)	Not applicable.
	Evaporation rate	Not applicable.
	Flammability (solid, gas)	Non-flammable.
	Explosive limit ranges.	Not applicable.
	Vapour Pressure (mm Hg)	Not applicable.
	Vapour Density (Air=1)	Not applicable.
	Density (g/ml) @ 20°C	1.908 – 1.945
	Solubility (Water)	Insoluble.
	Solubility (Other)	Soluble in hexane; slightly soluble in diethyl ether. Infinitely miscible with liquid fluorocarbons and refrigerants. Insoluble in oils and ethanol.
	Partition Coefficient (n-Octanol/water)	Not available.
	Auto Ignition Temperature (°C)	Not applicable.
	Decomposition Temperature (°C)	>400
	Viscosity (mPa.s)	Not available.
	Explosive properties	Not explosive.
	Oxidising properties	Not oxidising.
9.2	Other information	No information available.

10. SECTION 10: STABILITY AND REACTIVITY

10.1	Reactivity	Stable under normal conditions. Decomposes at temperatures above (°C): 400.
10.2	Chemical stability	Stable under normal conditions.
10.3	Possibility of hazardous reactions	Avoid thermal decomposition beginning at elevated temperatures [$> 400\text{ }^{\circ}\text{C}$]. Reacts with sodium thiophenolate.
10.4	Conditions to avoid	Heat.
10.5	Incompatible materials	Metals: lithium, sodium, potassium, calcium, barium.
10.6	Hazardous Decomposition Product(s)	Carbon oxides, hydrogen fluoride, fluorine and fluorophosgene

11. SECTION 11: TOXICOLOGICAL INFORMATION

This material is unlikely to present a significant health hazard under normal conditions of handling and use

11.1 Information on toxicological effects

11.1.1 Acute toxicity

Ingestion	DL50 $> 191\ 000\ \text{mg/kg}$ (intra-gastric, mice)
Inhalation	CL $> 166\ 395\ \text{mg/m}^3$ (inh., 1 h, rats)
Skin Contact	DL50 $> 2\ 500\ \text{mg/kg}$ (epicutaneous, rabbits)
Eye Contact	Low acute toxicity. Decomposition products: May cause irritation to eyes.

Skin corrosion/irritation

Not classified. No evidence of irritant effects from normal handling and use.

Serious eye damage/irritation

Not classified.

Respiratory or skin sensitization

Not classified.

Mutagenicity

No information available.

Carcinogenicity

No information available.

Reproductive toxicity

No information available.

STOT - single exposure

By toxicometric parameters, the product is low-toxic at single ingestion and skin contact.

STOT - repeated exposure

Affects central nervous system, lungs, liver, hemopoiesis (bone marrow).

Aspiration hazard

Not classified.

11.2

Other information

None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1	Toxicity	No information available.
12.2	Persistence and degradability	Transforms in environment, data on transformation products are not available.
12.3	Bioaccumulative potential	No information available.
12.4	Mobility in soil	No information available.
12.5	Results of PBT and VPVB assessment	No information available.
12.6	Other adverse effects	No information available.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1	Waste treatment methods	Dispose of contents in accordance with local, state or national legislation. Do not allow to enter drains, sewers or watercourses.
13.2	Additional Information	WGK 0 (highly water-polluting substances). (Official classification).

14. SECTION 14: TRANSPORT INFORMATION

Not classified as dangerous for transport.

14.1	UN number	Not applicable.
14.2	Proper Shipping Name	Not applicable.
14.3	Transport hazard class(es)	Not applicable.
14.4	Packing Group	Not applicable.
14.5	Environmental hazards	Not applicable.
14.6	Special precautions for user	Not applicable.
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

15. SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1	EU regulations Authorisations and/or restrictions on use	None known.
15.1.2	National regulations	Hazard classification - In accordance with: State Standard of Russian Federation (GOST 12.1.007). Label elements - In accordance with: State Standard of Russian Federation (GOST 31340-07).
15.2	Chemical Safety Assessment	Not available.

16. SECTION 16: OTHER INFORMATION

16.1	Classification of the substance or mixture	Perfluorodecaline
16.1.1	Regulations (EC) No. 1272/2008	Hazard class and category: Causes skin corrosion (necrosis)/skin irritation (Skin Irrit. 3) Causes serious eye damage/eye irritation (Eye Irrit. 2);
	Labelling Labelling according to Regulations (EC) No.1272/2008 [CLP/GHS] Hazard Pictogram: Signal word: Hazard statements:	None. Warning H316: Causes mild skin irritation; H320: Causes eye irritation;
	Precautionary statements	P264: Wash hands thoroughly after handling; P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing; P332+P311: If skin irritation occurs: Call a doctor; P337+P311: If eye irritation persists: Call a doctor;
2.2	Other hazards	Low-hazardous product by human organism acute effect. Slight irritation of skin and eye mucous membranes. Toxic and irritating vapors are formed at combustion and/or thermal decomposition (see Section 5.2).

The following sections contain revisions or new statements: 1-16.

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic

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An Employer must inform employees and other persons of the dangers they can be incurred and precautionary measures they should apply.

Annex to the extended Safety Data Sheet (eSDS)

No information available.