SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- Trade name GALDEN® HS240

1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses of the Substance/Mixture

- Heat transfer medium
- For industrial use only

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY (SHANGHAI) Co., Ltd
3966, JINDU RD, XINZHUANG INDUSTRIAL ZONE, MINHANG DISTRICT, SHANGHAI, CHINA 201108
Tel: +86 21 2408 9045

E-mail address

sds.syensqo@syensqo.com

1.4 Emergency telephone number

+61 2 8014 4558 [CareChem 24]

MULTI LINGUAL EMERGENCY NUMBER (24/7)

Europe/Latin America/Africa:+44 1235 239 670 (UK)

Middle East/Africa speaking Arabic: +44 1235 239 671 (UK)

Asia Pacific : +65 3158 1074 (Singapore)

China : 400 120 6011 (toll-free, access from China only)

North America : +1 800 424 9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Work Health and Safety Regulation 2011

- Not classified as a Hazardous chemical under the regulation above.

SUSMP (AU)

- Not scheduled

Please use the original publication to check for specific uses, specific conditions or threshold limits that might apply for this chemical.

2.2 Label elements

Work Health and Safety Regulation 2011

- Not labelled as a Hazardous chemical under the regulation above.

2.3 Other hazards which do not result in classification

- Thermal decomposition can lead to release of toxic and corrosive gases.

SECTION 3: Composition/information on ingredients

3.1 Substance

- Chemical nature Perfluorinated polyethers

Information on Components and Impurities

Chemical name	CAS-No.	Concentration [%]
1-Propene, 1,1,2,3,3,3-hexafluoro-, oxidized, polymd.	69991-67-9	> 99.9

Remarks

- No hazardous ingredients according to the criteria of SWAC (Australia)

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

In case of inhalation

- Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
- Oxygen or artificial respiration if needed.

In case of skin contact

- Wash off with soap and water.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If eye irritation persists, consult a specialist.

In case of ingestion

- Drink 1 or 2 glasses of water.
- Do NOT induce vomiting.
- If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects

- No known effect.

In case of skin contact

Effects

- Effects of skin contacts may include:
- Redness

In case of eye contact

Effects

- Contact with eyes may cause irritation.
- Redness

In case of ingestion

Symptoms

- Ingestion may provoke the following symptoms:
- Nausea
- Vomiting
- Diarrhoea

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

- Water
- powder
- Foam
- Dry chemical
- Carbon dioxide (CO2)

Unsuitable extinguishing media

- None

5.2 Special hazards arising from the substance or mixture

- The product is not flammable.
- Not explosive
- In case of fire hazardous decomposition products may be produced such as: Gaseous hydrogen fluoride (HF), Fluorophosgene

5.3 Advice for firefighters

Special protective equipment for firefighters

- Wear self-contained breathing apparatus and protective suit.
- When intervention in close proximity wear acid resistant over suit.

Further information

- Evacuate personnel to safe areas.
- Approach from upwind.
- Protect intervention team with a water spray as they approach the fire.
- Keep containers and surroundings cool with water spray.
- Keep product and empty container away from heat and sources of ignition.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.

Advice for emergency responders

- Ensure adequate ventilation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.

6.2 Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

- Soak up with inert absorbent material.
- Suitable material for picking up.
- Dry sand
- Earth
- Shovel into suitable container for disposal.

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Ensure adequate ventilation.
- Use personal protective equipment.
- Keep away from heat and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Take measures to prevent the build up of electrostatic charge.
- Clean and dry piping circuits and equipment before any operations.
- Ensure all equipment is electrically grounded before beginning transfer operations.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep away from heat and sources of ignition.
- Keep in properly labelled containers.
- Keep away from combustible material.
- Keep away from incompatible products
- Provide tight electrical equipment well protected against corrosion.
- Refer to protective measures listed in sections 7 and 8.

Packaging material

Suitable material

- Plastic materials.
- glass

7.3 Specific end use(s)

- Product degradation was not observed in VPS application.
- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

- Contains no substances with occupational exposure limit values above their regulatory reporting threshold.

Threshold limit values of by-products from thermal decomposition:

Components with national occupational exposure limits

Components	Value type	Value	Basis
Hydrogen fluoride	Peak limit	3 ppm 2.6 mg/m3	Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
	Expressed as :Fluorine		
Carbonyl difluoride	TWA	2 ppm 5.4 mg/m3	Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
Carbonyl difluoride	STEL	5 ppm 13 mg/m3	Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment

Components with other occupational exposure limits

Components	Value type	Value	Basis
Hydrogen fluoride	TWA	0.5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Danger of cutaneous absorption Expressed as :Fluorine		
Hydrogen fluoride	C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Danger of cutaneous absorption Expressed as :Fluorine		
Carbonyl difluoride	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
Carbonyl difluoride	STEL	5 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2 Exposure controls

Control measures

Engineering measures

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection

- In case of decomposition (see section 10), use an air breathing apparatus with face mask.
- Use only respiratory protection that conforms to international/ national standards.

Hand protection

- Wear protective gloves.

Suitable material

- Nitrile rubber
- PVC

- Neoprene gloves
- butyl-rubber

- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Eye protection
- Tightly fitting safety goggles.

Skin and body protection
- Wear work overall and safety shoes.

Hygiene measures
- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

- Dispose of rinse water in accordance with local and national regulations.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	odourless
Odour Threshold	No data available
Melting point/freezing point	Melting point/range: Not applicable
Initial boiling point and boiling range	Boiling point/boiling range: 240 °C
Flammability (solid, gas)	Not applicable
Flammability (liquids)	The product is not flammable.
Flammability/Explosive limit	No data available
Flash point	The product is not flammable.
Auto-ignition temperature	Ignition temperature: not auto-flammable, Expert judgement
Decomposition temperature	> 290 °C
pH	No data available
Viscosity	Viscosity, dynamic : 9.6 mPa.s
Solubility	Water solubility: insoluble Solubility in other solvents: Fluorinated solvents: soluble

Partition coefficient: n-octanol/water	No data available
Vapour pressure	ca. 1.3 hPa
Density	1.83 g/cm3 (20 °C)
Relative density	No data available
Relative vapor density	No data available
Particle characteristics	No data available
Evaporation rate (Butylacetate = 1)	No data available

9.2 Other information

Oxidizing properties	Not considered as oxidizing
Impact sensitivity	Not explosive
Molecular weight	1,085 Da Polymer Molar Mass

SECTION 10: Stability and reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under recommended storage conditions.
- Metals promote and lower decomposition temperature

10.3 Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

- Avoid to use in presence of high voltage electric arc and in absence of oxygen.
- Keep away from flames and sparks.
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- Alkali metals
- Lewis acids (Friedel-Crafts) above 100°C
- Aluminum and magnesium in powder form above 200°C

10.6 Hazardous decomposition products

- Gaseous hydrogen fluoride (HF).
- Fluorophosgene

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

By analogy

Not classified as hazardous for acute oral toxicity according to GHS.

Acute inhalation toxicity

By analogy

Not classified as hazardous for acute inhalation toxicity according to GHS.

Acute dermal toxicity

By analogy

Not classified as hazardous for acute dermal toxicity according to GHS.

Acute toxicity (other routes of administration) No data available

Skin corrosion/irritation

By analogy

Not classified as irritating to skin.

Serious eye damage/eye irritation

By analogy

Not classified as irritating to eyes

Respiratory or skin sensitisation

Maximisation Test - Guinea pig
Does not cause skin sensitisation.
Test substance: Molecular weight ~ 1500
Unpublished internal reports

Respiratory sensitization
No information available.

Mutagenicity

Genotoxicity in vitro

By analogy
Product is not considered to be genotoxic.

Genotoxicity in vivo

By analogy
Product is not considered to be genotoxic.

Carcinogenicity No data available

Toxicity for reproduction and development

Toxicity to reproduction/Fertility No data available

Developmental Toxicity/Teratogenicity No data available

STOT

STOT - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.

STOT - repeated exposure No data available

Experience with human exposure No data available

CMR effects

The product is considered to be non-mutagenic based on an overall assessment of the data from animal and/or in vitro testing.

Aspiration toxicity No data available

Further information Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.

Thermal decomposition can lead to release of toxic and corrosive gases.
The exposure to decomposition products causes severe irritation of eyes, skin and mucous membranes.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

- 96 h : - Oncorhynchus mykiss (rainbow trout)
static test

Test substance: Molecular weight ~ 1500
No toxicity at the limit of solubility
Unpublished internal reports

Acute toxicity to daphnia and other aquatic invertebrates

- 48 h : - Daphnia magna (Water flea)
static test
Test substance: Molecular weight ~ 1500
No toxicity at the limit of solubility
Unpublished internal reports

Toxicity to aquatic plants No data available

Toxicity to microorganisms

Pseudomonas putida
Cell multiplication inhibition test
Test substance: Molecular weight ~ 1500
No toxicity at the limit of solubility
Unpublished internal reports

Chronic toxicity to fish No data available

Chronic toxicity to daphnia and other aquatic invertebrates No data available

12.2 Persistence and degradability

Abiotic degradation No data available

Physical- and photo-chemical elimination No data available

Biodegradation No data available

Degradability assessment

The product is not considered to be rapidly degradable in the environment

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water No data available

Bioconcentration factor (BCF) No data available

12.4 Mobility in soil

Adsorption potential (Koc) No data available

Known distribution to environmental compartments
low volatility

12.5 Results of PBT and vPvB assessment No data available

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard
No toxicity at the limit of solubility

Remarks Ecological injuries are not known or expected under normal use.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Can be incinerated, when in compliance with local regulations.
- The incinerator must be equipped with a system for the neutralisation or recovery of HF.
- Dispose of in accordance with local regulations.

Advice on cleaning and disposal of packaging

- Empty containers can be landfilled, when in accordance with the local regulations.

SECTION 14: Transport information

Road and Rail transport – ADG (Australia)
not regulated

IMDG
not regulated

IATA
not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison Schedule (SUSMP Australia)

- Not scheduled
- Please use the original publication to check for specific uses, specific conditions or threshold limits that might apply for this chemical.

Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed as active on the TSCA inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory
Australian Inventory of Industrial Chemicals (AIIC)	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Japan. ISHL - Inventory of Chemical Substances	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory - This substance/mixture can only be imported by Syensqo. Contact Syensqo for further details.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
New Zealand. Inventory of Chemical Substances	- Listed on Inventory
Taiwan. Chemical Substance Inventory (TCSI)	- Listed on Inventory
EU. European Registration, Evaluation, Authorization and Restriction of Chemical (REACH)	- If product is purchased from Syensqo in Europe it is in compliance with REACH, if not please contact the supplier.

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

- C: Ceiling limit
- Peak limit: Exposure standard - peak
- STEL: Exposure standard - short term exposure limit
- TWA: Exposure standard - time weighted average
- ca.: approximately
- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.
- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Instructions for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- GHS/CLP/SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- STOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

Further information

- This data sheet contains changes from the previous version in section(s):
- See section 12
- Distribute new edition to clients

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.