

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

1.1. Product identifier

| | |
|------------------------|--|
| Product form | : Substance |
| Trade name | : THERMASOLV IM7 |
| Chemical name | : reaction mass of: 1-ethoxy-1,1,2,3,3,3-hexafluoro-2-(trifluoromethyl)propane; 1-ethoxy-1,1,2,2,3,3,3,4,4,4-nonfluorobutane |
| EC Index-No. | : 603-109-00-7 |
| EC-No. | : 425-340-0 |
| CAS-No. | : 163702-06-5 |
| REACH registration No. | : 01-0000017174-74 |
| Product code | : R&D |

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

1.2.1. Relevant identified uses

| | |
|----------------------------------|---------------------|
| Industrial/Professional use spec | : Industrial |
| Use of the substance/mixture | : Immersion cooling |

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

INVENTEC PERFORMANCE CHEMICALS SAS
26 rue des coulons
P.O. Box BP 27
94363 BRY SUR MARNE
France
T +33 (0) 1 49 83 53 00 - F +33 (0) 1 48 81 24 40
ContactFDS@inventec.dehon.com

1.4. Emergency telephone number

Emergency number : +33 (0) 1 72 11 00 03 - 24h/24 7j/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aquatic Chronic 4 H413

Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

| | |
|-------------------------|--|
| Signal word (CLP) | : - |
| Hazard statements (CLP) | : H413 - May cause long lasting harmful effects to aquatic life. |
| EUH-statements | : EUH018 - In use may form flammable/explosive vapour-air mixture. |

2.3. Other hazards

No additional information available

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SECTION 3: Composition/information on ingredients

3.1. Substances

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|----------|---|
| reaction mass of: 1-ethoxy-1,1,2,3,3,3-hexafluoro-2-(trifluoromethyl)propane; 1-ethoxy-1,1,2,2,3,3,3,4,4,4-nonafluorobutane | CAS-No.: 163702-06-5 EC-No.: 425-340-0 EC Index-No.: 603-109-00-7 REACH-no: 01-0000017174-74 | 90 – 100 | Aquatic Chronic 4, H413 |

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). |
| First-aid measures after inhalation | : Allow affected person to breathe fresh air. Allow the victim to rest. |
| First-aid measures after skin contact | : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. |
| First-aid measures after eye contact | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. |
| First-aid measures after ingestion | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|------------------|--|
| Symptoms/effects | : Not expected to present a significant hazard under anticipated conditions of normal use. |
|------------------|--|

4.3. Indication of any immediate medical attention and special treatment needed

No supplementary information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

| | |
|--|---|
| Fire hazard | : Flammable or explosive vapour/air mixtures may be formed. |
| Hazardous decomposition products in case of fire | : During combustion : Carbon monoxide, Carbon dioxide, Hydrogen fluoride. |

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

| | |
|------------------|--|
| General measures | : Avoid contact with skin and eyes. Remove ignition sources. |
|------------------|--|

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6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Evacuate area.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.
Collect spillage. Store away from other materials.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of solid materials or residues refer to section 13 : "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Remove all sources of ignition.
Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Separate working clothes from town clothes. Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, well-ventilated area. Keep container tightly closed. Store away from direct sunlight or other heat sources.
Incompatible products : Strong bases. Strong acids. Strong oxidizing agents.
Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

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DNEL/DMEL (Workers)

| | |
|--|------------------------|
| Long-term - systemic effects, inhalation | 1764 mg/m ³ |
|--|------------------------|

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| THERMASOLV IM7 (163702-06-5) | |
|------------------------------|-------------------|
| PNEC (Water) | |
| PNEC aqua (freshwater) | 0.00237 mg/l |
| PNEC aqua (marine water) | 0.000237 mg/l |
| PNEC (Sediment) | |
| PNEC sediment (freshwater) | 0.0393 mg/kg dwt |
| PNEC sediment (marine water) | 0.00393 mg/kg dwt |
| PNEC (Soil) | |
| PNEC soil | 0.0041 mg/kg dwt |

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Do not exceed the occupational exposure limits (OEL). Do not breathe gas/fumes/vapour/spray.

8.2.2. Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure.

8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Use chemically protective clothing.

Hand protection:

Neoprene protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

If the ventilation is suitable, it is not essential to wear respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Other information:

Do not eat, drink or smoke during use. Safety shower. Eye fountain.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|-----------------|--|
| Physical state | : Liquid |
| Colour | : Colourless. |
| Odour | : weak. |
| Odour threshold | : Not available |
| Melting point | : -138 °C |
| Freezing point | : Not available |
| Boiling point | : 76 °C Atm. press.: 1006 mBar Decomposition: 'no' |
| Flammability | : Non flammable. |

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| | |
|---|--|
| Explosive properties | : Not explosive material according to EC criteria. |
| Oxidising properties | : Non oxidizing material according to EC criteria. |
| Lower explosion limit | : 210 g/m ³ |
| Upper explosion limit | : 1070 g/m ³ |
| Flash point | : Not available |
| Auto-ignition temperature | : 375 °C |
| Decomposition temperature | : Not available |
| pH | : Not available |
| Viscosity, kinematic | : 0.43 mm ² /s |
| Solubility | : Insoluble in water. |
| Partition coefficient n-octanol/water (Log Kow) | : Not available |
| Partition coefficient n-octanol/water (Log Pow) | : 4.2 (30°C) |
| Vapour pressure | : 14532.1 Pa (25°C) |
| Vapour pressure at 50°C | : Not available |
| Density | : 1.43 g/ml |
| Relative density | : 1.43 |
| Relative vapour density at 20°C | : 9.1 |
| Particle characteristics | : Not applicable |

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

| | |
|--|------------|
| Relative evaporation rate (butylacetate=1) | : 33 |
| VOC content | : 1430 g/l |

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

In use may form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

No dangerous polymerization.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

Hazardous decomposition products may be released during prolonged heating like smokes, carbon monoxide and dioxide. Perfluoroisobutylene. Hydrogen fluoride.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

| | |
|-----------------------------|------------------|
| Acute toxicity (oral) | : Not classified |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

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| THERMASOLV IM7 (163702-06-5) | |
|-----------------------------------|--|
| LD50 oral rat | > 2000 mg/kg bodyweight Animal: rat, Guideline: EU Method B.1 (Acute Toxicity (Oral)), Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Remarks on results: other: |
| LC50 Inhalation - Rat | > 989 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity) |
| Skin corrosion/irritation | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| Serious eye damage/irritation | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| Respiratory or skin sensitisation | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| Germ cell mutagenicity | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| Carcinogenicity | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| Reproductive toxicity | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| STOT-single exposure | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |
| STOT-repeated exposure | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |

| THERMASOLV IM7 (163702-06-5) | |
|------------------------------|--|
| NOAEL (oral, rat, 90 days) | ≈ 1000 mg/kg bodyweight Animal: rat, Guideline: other: |
| Aspiration hazard | : Not classified |
| Additional information | : Based on available data, the classification criteria are not met |

| THERMASOLV IM7 (163702-06-5) | |
|------------------------------|-------------------------|
| Viscosity, kinematic | 0.43 mm ² /s |

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : May cause long lasting harmful effects to aquatic life.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : May cause long lasting harmful effects to aquatic life.

| THERMASOLV IM7 (163702-06-5) | |
|------------------------------|---|
| LC50 - Fish [1] | > 2.75 mg/l Test organisms (species): Pimephales promelas |
| EC50 - Crustacea [1] | > 2.55 mg/l Test organisms (species): Daphnia magna |
| EC50 72h - Algae [1] | > 2.39 mg/l Test organisms (species): Scenedesmus capricornutum |

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12.2. Persistence and degradability

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| | |
|-------------------------------|---|
| Persistence and degradability | May cause long-term adverse effects in the environment. |
|-------------------------------|---|

12.3. Bioaccumulative potential

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| | |
|---|------------------|
| Partition coefficient n-octanol/water (Log Pow) | 4.2 (30°C) |
| Bioaccumulative potential | Not established. |

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|--|---|
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. |
| Additional information | : The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal. |
| Ecology - waste materials | : Avoid release to the environment. |
| European List of Waste (LoW) code | : 07 01 03* - organic halogenated solvents, washing liquids and mother liquors 14 06 02* - other halogenated solvents and solvent mixtures |

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

| ADR | IMDG | IATA | | |
|---|---------------|---------------|---------------|---------------|
| 14.1. UN number or ID number | | | | |
| Not regulated for transport | | | | |
| Not regulated | Not regulated | Not regulated | Not regulated | Not regulated |
| 14.2. UN proper shipping name | | | | |
| Not regulated | Not regulated | Not regulated | | |
| 14.3. Transport hazard class(es) | | | | |
| Not regulated | Not regulated | Not regulated | | |
| 14.4. Packing group | | | | |
| Not regulated | Not regulated | Not regulated | | |
| 14.5. Environmental hazards | | | | |
| Not regulated | Not regulated | Not regulated | | |

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| ADR | IMDG | IATA |
|--|------|------|
| No supplementary information available | | |

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not applicable.

VOC Directive (2004/42)

VOC content : 1430 g/l

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Listed on the Japanese ENCS (Existing New Chemical Substances) inventory

15.2. Chemical safety assessment

For this substance a chemical safety assessment has been carried out

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SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:

| | |
|-------------------|---|
| Aquatic Chronic 4 | Hazardous to the aquatic environment – Chronic Hazard, Category 4 |
| EUH018 | In use may form flammable/explosive vapour-air mixture. |
| H413 | May cause long lasting harmful effects to aquatic life. |

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.