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

* 1. **Product identifier:** Temperature Gages, Temperature Ranges 220 deg F to 320 deg F

**Substances**

**Substance name: 1,1,1,2,2,3,4,5,5,5-Decafluoropentane**

**CAS No: 138495-42-8**

**Present in the gages at less than 0.10%**

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

**Relevant identified uses**

**The above substance is sealed in the gage. No exposure is anticipated under normal use. Gages are used to monitor temperature on engines.**

**Uses advised against:**

**Review installation manual before installation of gage.**

**1.3 Details of the supplier of the safety data sheet:**

**Supplier:**

**Name: Enovation Controls**

**Address: 5311 S 122nd East Avenue, Tulsa, Oklahoma 74146**

**Information contact: +001-918-317-4200**

**www.enovationcontrols.com**

**1.4 EMERGENCY TELEPHONE NUMBER:**

**Chemtrec/Enovation Controls #624091 +001-703-527-3887**

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**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture:**

HS Classification in accordance with 29CFR1910 (OSHA HCS)

Not a hazardous substance or mixture.

No hazard pictogram, no signal word, no hazard statement, no precautionary statement required.

Other Hazards

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Misuse or intentional inhalation abuse may cause death without warning symptoms. Rapid evaporation of the product may cause frostbite.

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* 1. **Label elements**

**Hazard pictograms: None**

**Signal word: None**

**Precautionary statements:**

**P308+P313 IF exposed or concerned: Call a POISON CENTER/doctor.**

**P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.**

**Supplemental Hazard information: None**

**Special rules for supplemental label elements for certain mixtures: None**

**Additional labelling: None**

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**SECTION 3. Composition/information on ingredients**

* 1. **Substances**

**Substance name: 1,1,1,2,2,3,4,5,5,5-decafluoropentane**

**CAS No: 138495-42-8**

Concentration: < 0.10%

Classification: None

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**Additional information:**

**Full text of H- and EUH-phrases: see SECTION 16.**

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**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

**Following inhalation: If breathed in, move person into fresh air.**

**Following skin contact: Wash off with soap and plenty of water. .**

**Following eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.**

**Following ingestion: Rinse mouth with water. Do Not induce vomiting. Consult a physician.**

**Self-protection of the first aider: Wear gloves and safety glasses.**

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

No data available.

* 1. Indication of any immediate medical attention and special treatment needed

No data available.

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**SECTION 5: Firefighting measures**

**5.1** **Extinguishing media** Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture:

Carbon oxides, Carbonyl Fluoride, Hydrogen Fluoride

5.3 Advice for fire-fighters: Wear self-contained breathing apparatus.

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**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For PPE, see Section 8.

* 1. **Environmental precautions:** Prevent further leakage or spillage, if safe to do so. Do not let product enter drains.
  2. **Methods and material for containment and cleaning up:** Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections:** For disposal see Section 13.

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**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling:** Under conditions of normal use no exposure is anticipated. If the gage is damaged the potential routes of entry are inhalation, ingestion and skin contact. The capillary fluid is a colorless liquid.

**Protective measures**

**Advice on safe handling**: Follow directions in Instruction Manual.

**Advice on general occupational hygiene:** Wash hands after installation.

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**7.2 Conditions for safe storage, including any incompatibilities:** Store in original packaging in a clean, dry location.

Storage class: None

Materials to avoid: oxidizers

**7.3 Specific end uses**: No other specific uses are stipulated**.**

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**SECTION 8: Exposure controls/personal protection**

* 1. **Control parameters**

**Occupational exposure limits**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Limit value type (country of origin)** | **Substance**  **name** | **EC-No.** | **CAS-No.** | **Occupational exposure limit value** | | **Monitoring**  **and observation processes** | **Peak limitation** | **Source** |
| Long term | Short term |  |  |  |
|  | 1,1,1,2,2,3,4,5,5,5-decafluoropentane |  | 138495-42-8 |  | 225 ppm TWA |  |  | WEEL |
|  |  |  |  |  | 700 ppm STELl |  |  | WEEL |

**Exposure limits at intended use: When gage is used as designed, no exposure to is anticipated.**

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**8.2 Exposure controls**

**Appropriate engineering controls: not required under conditions of normal use. Use good industrial hygiene and safety practices. Wash hands after installing gage.**

**Personal protective equipment: Normal precaution**

**Eye / Face protection: Normal precaution**

**Skin protection: Normal precaution**

**Respiratory protection: not required under conditions of normal use**

**Thermal hazards: none if gage is used as specified in Instruction Manual.**

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**8.2.3 Environmental exposure controls: If capillary tube breaks do not let liquid go into drains.**

**Consumer exposure control: not a consumer product, for industrial use only.**

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**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**Appearance: The 1,1,1,2,2,3,4,5,5,5-decafluoropentane is contained in a sealed capillary tube on the gage.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Value** | **Concentration** | **Method** | **Temperature** | **Pressure** | **Remark** |
| **pH** | **NA** |  |  |  |  |  |
| **Melting point/freezing point** | **-83.7 deg C** |  |  |  |  |  |
| **Initial boiling point/boiling range** | **53.75 deg C** |  |  |  |  |  |
| **Flash point** | **Does not flash** |  |  |  |  |  |
| **Evaporation rate** | **No data available** |  |  |  |  |  |
| **Flammability (solid, gas)** | **NA** |  |  |  |  |  |
| **Upper/lower flammability or explosive limits** |  |  |  |  |  |  |
| **Upper explosive limits** | **None** |  |  |  |  |  |
| **Lower explosive limits** | **None** |  |  |  |  |  |
| **Vapour pressure** | **313 hPa** |  |  |  |  |  |
| **Vapour density** | **8.7** |  |  |  |  |  |
| **Relative density** | **1.58 g/cm3** |  |  |  |  |  |
| **Solubility(ies)** | **Slightly soluble in water** |  |  |  |  |  |
| **Partition coefficient:**  **n-octanol/water** | **Log Pow: 2.7** |  |  |  |  |  |
| **Auto-ignition temperature** | **No data** |  |  |  |  |  |
| **Decomposition temperature** | **No data** |  |  |  |  |  |
| **Viscosity** | **No data** |  |  |  |  |  |
| **Viscosity, dynamic** | **6.7 mPa** |  |  |  |  |  |
| **Viscosity, cinematic** | **No data** |  |  |  |  |  |
| **Explosive properties** | **NA** |  |  |  |  |  |
| **Oxidizing properties** | **None** |  |  |  |  |  |

**Physical state: Liquid Colour: Clear Odour: No data Odour threshold: No data**

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**9.2 Other information:**

**Physical hazards: Not available.**

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**SECTION 10: Stability and reactivity**

**10.1 Reactivity: No data available**

**10.2 Chemical stability: Stable under recommended storage conditions.**

**10.3 Possibility of hazardous reactions: No data available**

**10.4 Conditions to avoid: Heat, flames and sparks.**

**10.5 Incompatible materials: No data available.**

**10.6 Hazardous decomposition products: No data available**

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**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

1,1,1,2,2,3,4,5,5,5-Decafluoropentane

Acute toxicity:

Acute oral toxicity: LD50(Rat): >5000 mg/kg (OECD Test Guideline 401)

Acute inhalation toxicity: LC50(Rat): 114.4 mg/l (OECD Test Guideline 403)

Acute dermal toxicity: LD50(Rabbit): >5000 mg/kg (OECD Test Guideline 402)

Skin Corrosion/Irritation: No eye irritation (Rabbit) (OECD Test Guideline 405)

Respiratory or Skin Sensitization : Weight of evidence does not support classification as a germ cell mutagen

Carcinogenicity: Not classified based on available information from IARC, OSHA or NTP

Reproductive Toxicity: Not classified based on available information.

Specific target organ toxicity (single exposure)

No significant health effects observed in animals at concentrations of 2000 mg/kg body weight or less for Ingestion, Skin contact or inhalation.

Repeated Dose Toxicity 15.4 mg/l (Rat) NOAEL

20.6 mgl/ (Rat) LOAELl

**SECTION 12:** **Ecological information**

**12.1 Toxicity:**

**Aquatic toxicity**   
Acute (short-term) fish toxicity

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Effect dose/**  **-concentration** | **Value** | **Test duration** | **Species** | **Result/**  **Evaluation** | **Method** | **Remark** |
| **1,1,1,2,2,3,4,5,5,5-Decafluoropentane** | **LC50** | **13 mg/l** | **96 h** | **Danio** |  | **OECD Test Guideline 203** |  |

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**12.2 Persistence and degradability**

**Biodegradation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Inoculum** | **Parameter** | **Degradation**  **Rate** | **Method** | **Remark** |
| **1,1,1,2,2,3,4,5,5,5-Decafluoropentane** |  |  | **not readily biodegradable** | **OECD 301 D** | **--** |

**12.3 Bio accumulative potential**

**Assessment / Classification**

**1,1,1,2,2,3,4,5,5,5-Decafluoropentane: bioaccumulation is unlikely**

**12.4 Mobility in soil**

**Assessment / Classification: no data available.**

**12.5 Results of PBT and vPvB assessment: not conducted**

**12.6 Other adverse effects:**

**None known**

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**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

Offer surplus and non-recyclable gages to licensed disposal company in accordance with local, state and federal regulations.

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**SECTION 14: Transport information**

International Regulations

UNRTDG : Not regulated as a dangerous good

IATA-DGR: Not regulated as a dangerous good

IMDG Code: Not regulated as a dangerous good

49 CFR: Not regulated as a dangerous good.

**14.6 Special precautions for user:** None

**14.7 Additional information:** None

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**SECTION 15: Regulatory information**

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

1,1,1,2,2,3,4,5,5,5-decafluoropentane

CAS No: 138495-42-8

CERCLA: Does not have a CERCLA RQ

SARA 304 Does not have a Section 304 EHA RQ.

SARA 302: Does not have a Section 302 EHS TPQ

SARA 311/312: No hazards

SARA 313: Does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

Is listed on the Pennsylvania Right to Know

Is listed in the Montreal Protocol

California Prop 65: Not listed

* 1. **Chemical Safety Assessment**

For this substance a chemical safety assessment is not required.

**SECTION 16: Other information**

HMIS Rating:

Health Hazard: 0

Flammability: 0

Physical Hazard: 0

NFPA 704 Rating:

Health Hazard: 0

Fire Hazard: 0

Reactivity: 0