SAFETY DATA SHEET
Revision number: 3; Revision date: 06/03/2019

SECTION 1: IDENTIFICATION
Product name: Hydrofluoroether (HFE-347)
CAS NO: 406-78-0
Company: TMC Industries Inc.
Address: 1423 Mill Lane, Waconia, MN 55387
Responsible Department: Quality Assurance
Telephone: 952-442-1140; FAX: 952-442-1160
e-mail: sales@tmcindustries.com
Emergency telephone number: 800-424-9300 (toll-free); +1 703-527-3887 (outside USA)

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture

2.2 Label elements
Pictograms or hazard symbols: None
Signal word: No signal word
Hazard statements: None
Precautionary statements: None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
Substance/mixture: Substance
Components: 1,1,2,2-Tetrafluoroethyl 2,2,2-Trifluoroethyl Ether
CAS Number: 406-78-0
Chemical Formula: C4H3F7O
Percent: >99.5% (GC)

SECTION 4: FIRST AID MEASURES
4.1 Description of first aid measures
Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
Skin contact: Remove/Take off immediately all contaminated clothing.
Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention.

**Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Ingestion:** Get medical advice/attention if you feel unwell. Rinse mouth.

**Protection of first-aiders:** A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

4.2 Most important symptoms and effects, both acute and delayed
No data available

4.3 Indication of any immediate medical attention and special treatment needed
No data available

**SECTION 5: FIRE-FIGHTING MEASURES**

5.1 Extinguishing media

**Suitable extinguishing media:** Dry chemical, foam, water spray, carbon dioxide.

**Unsuitable extinguishing media:** Solid streams of water

5.2 Specific hazards arising from the chemical: Take care as it may decompose upon combustion or in high temperatures to generate poisonous fume.

5.3 Advice for firefighters

**Precautions for firefighters:** Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so.

**Special protective equipment for firefighters:** When extinguishing fire, be sure to wear personal protective equipment.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

6.1 Personal precautions, protective equipment and emergency procedures:
Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

6.2 Environmental precautions: Prevent product from entering drains.

6.3 Methods and precautions for containment and cleaning up:
Absorb spilled material in dry sand or inert absorbent before recovering it into an airtight container. In case of large amount of spillage, contain a spill by bunding.
Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

6.4 Prevention of secondary hazards:
Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Technical measures: Handling is performed in a well ventilated place. Wear suitable protective equipment.
Prevent generation of vapour or mist. Keep away from heat/sparks/open flame/hot surfaces. 
-No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling.
Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.

Advice on safe handling: Avoid contact with skin, eyes and clothing.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store in a cool, dark and well-ventilated place. Store away from incompatible materials such as oxidizing agents.

Packaging material: Comply with laws.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Engineering controls: Install a closed system or local exhaust. Also install safety shower and eye bath.

8.2 Personal protective equipment

Respiratory protection: Vapor respirator. Follow local and national regulations.
Hand protection: Protective gloves.
Eye protection: Safety glasses. A face-shield, if the situation requires.
Skin and body protection: Protective clothing. Protective boots, if the situation requires.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Colour: Colorless - Very pale yellow
Odour: No data available
PH: No data available
Melting point/freezing point: No data available
Boiling point/range: 56°C
Flash point: No data available
Flammability or explosive limits:
Lower: No data available
Upper: No data available

**Relative density:** 1.49

**Solubility(ies):**
- [Water] No data available
- [Other solvents] No data available

### SECTION 10: STABILITY AND REACTIVITY

**Chemical stability:** Stable under proper conditions.

**Possibility of hazardous reactions:** No special reactivity has been reported.

**Conditions to avoid:** Spark, Open flame, Static discharge

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** Carbon monoxide, Carbon dioxide, Hydrogen fluoride

### SECTION 11: TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available

**Skin corrosion/irritation:** No data available

**Serious eye damage/irritation:** No data available

**Germ cell mutagenicity:** No data available

**Carcinogenicity:**
- IARC = No data available
- NTP = No data available

**Reproductive toxicity:** No data available

### SECTION 12: ECOLOGICAL INFORMATION

12.1 **Ecotoxicity:**
- **Fish:** No data available
- **Crustacea:** No data available
- **Algae:** No data available

12.2 **Persistence / degradability:** No data available

12.3 **Bioaccumulative potential(BCF):** No data available

12.4 **Mobility in soil**
- **Log Pow:** No data available
- **Soil adsorption (Koc):** No data available
- **Henry’s Law constant(PaM3/mol):** No data available

### SECTION 13: DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system but exert extra care in igniting as this material is highly flammable. Observe all federal, state and local regulations when disposing of the substance
SECTION 14: Transport information

14.1 UN number
Not listed

14.2 UN proper shipping name
ADR/RID Not listed
IMDG/IMO Not listed
ICAO/IATA Not listed

14.3 Transport hazard class(es)
ADR/RID Does not correspond to the classification standard of the United Nations
IMDG/IMO Does not correspond to the classification standard of the United Nations
ICAO/IATA Does not correspond to the classification standard of the United Nations

14.4 Packaging group
ADR/RID -
IMDG/IMO -
ICAO/IATA -

14.5 Environmental hazards
Marine pollutant -

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No.1907/2006 Not listed

15.2 Chemical safety assessment
A chemical safety assessment has not been carried out.

16. OTHER INFORMATION
This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority.

The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.