SAFETY DATA SHEET

TMC-7100 Engineered Fluid

SECTION 1: IDENTIFICATION

1.1. Product identifier:

Trade name: TMC-7100 Engineered Fluid

Other names / Synonyms: Methyl Perfluoroisobutyl Ether
Methyl Perfluorobutyl Ether

Product no.: 7100, 7100-B, 7100-2.2, 7100-12, 7100-44, 7100-550

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

Relevant identified uses of the substance or mixture: Electronic Cleaner, Heat Transfer, Solvent (for cleaning and degreasing)
Restricted to professional users.

Uses advised against : Not Intended for food contact use.
Not Intended for Use as Medical Device or Drug.

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

Company and address:
TMC Industries, Inc.
1423 Mill Lane
Waconia, Minnesota 55387
USA
TF: +1 (800) 772-8179
www.tmcindustries.com

Contact person: Nick Hansen

E-mail: sales@tmcindustries.com

SDS date: 1/9/2025

SDS Version: 2.0

Date of previous version: 1/9/2025 (2.0)

1.4. Emergency telephone number:

VeolocityEHS 1-800-255-3924 (Contract#: MIS8157133) within the US, Canada, Puerto Rico and the U.S. Virgin Islands. If outside those areas, call 1-813-248-0585 (Contract#: MIS8157133).

SECTION 2: HAZARD(S) IDENTIFICATION

2.1. Classification of the substance or mixture:

Not classified according to HCS (29 CFR 1910.1200)

2.2. Label elements:

Hazard pictogram(s): Not applicable.

Signal word: Not applicable.

Hazard statement(s):

Precautionary statement(s):

- **General:** -
- **Prevention:** -
- **Response:** -
- **Storage:** -
- **Disposal:** Refer to manufacturer or supplier for information on recovery or recycling. (P502)

Additional labelling: Not applicable.

2.3. Other hazards:

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances:
Not applicable. This product is a mixture.

3.2. Mixtures:

Product/substance	Identifiers	% w/w	Classification	Note
Methyl Perfluoroisobutyl Ether	CAS No.: 163702-08-7	80-95%		
Methyl Perfluorobutyl Ether	CAS No.: 163702-07-6	40-60%		

Where the concentration of an ingredient is expressed as a range the exact concentration has been withheld as a trade secret.

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information:
-

SECTION 4: FIRST-AID MEASURES

4.1. Description of first aid measures:

General information: If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation: In case of discomfort: bring the person into fresh air.

Skin contact: Upon irritation: rinse with water. In the event of continued irritation, seek medical assistance.

Eye contact: Rinse gently with lukewarm water. Remove any contact lenses if this is easy to do. Continue rinsing. In case of persistent eye irritation or discomfort: Seek medical help.

Ingestion: Rinse and flush mouth thoroughly and consume large quantities of water. In case of continued discomfort: seek medical assistance and bring this safety data sheet.

Burns: Not applicable.

4.2. Most important symptoms and effects, both acute and delayed:
None known.

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

Information to medics:
Bring this safety data sheet or the label from this product.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media:
Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, powder, water mist.
Unsuitable extinguishing media: Waterjets should not be used, since they can spread the fire.

5.2. Special hazards arising from the substance or mixture:
Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

5.3. Advice for firefighters:
No specific requirements.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
Contaminated areas may be slippery.

6.2. Environmental precautions:
Avoid discharge to lakes, streams, sewers, etc.
Keep unauthorized persons away from the spill

6.3. Methods and material for containment and cleaning up:
Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections:
See section 13 “Disposal considerations” on handling of waste.
See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:
Smoking, drinking and consumption of food is not allowed in the work area.
See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities:

Recommended storage material:	Keep only in original packaging.
Storage conditions:	Keep container tightly closed
Incompatible materials:	Strong acids Bases Strong oxidizing agents

7.3. Specific end use(s):
This product should only be used for applications quoted in section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:
No substances are listed with a permissible exposure limit (ref: 29 CFR 1910.1000 TABLE Z-1)

8.2. Exposure controls:
Apply general control to prevent unnecessary exposure

General recommendations:	Smoking, drinking and consumption of food is not allowed in the work area.
Exposure scenarios:	There are no exposure scenarios implemented for this product.
Exposure limits:	Occupational exposure limits have not been defined for the substances in this product.
Appropriate technical measures:	Apply standard precautions during use of the product. Avoid inhalation of vapours.

Hygiene measures: Wash hands after use.
Measures to avoid environmental exposure: No specific requirements.

Individual protection measures, such as personal protective equipment:

Generally: Use only protective equipment with a recognized certification mark, e.g. the UL mark.

Respiratory Equipment:

Type	Class	Colour	Standards	
No specific requirements				

Skin protection:

Recommended	Type/Category	Standards	
No specific requirements.	-	-	

Hand protection:

Work situation	Material	Glove thickness (mm)	Breakthrough time (min.)	Standards	
When the product is subjected to extreme heat, HF may be formed.	Chemical Resistant gloves				

Eye protection:

Type	Standards	
No specific requirements	-	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Physical state: Liquid
Color: Colourless
Odor: Slight Ether Odor
Odor threshold (ppm): No data available
pH: Not applicable
Density (g/cm³): 1.5 (77 °F)
Kinematic viscosity: 0.6 cPs (77 °F)
Particle characteristics: No data available

Phase changes:

Melting point/freezing point (°F): -211
Melting point/freezing point (°C): -135
Softening point/range (°F): Does not apply to liquids.
Boiling point (°F): 142
Boiling point (°C): 61
Vapor pressure: 202 mmHg (77 °F)
Relative vapor density: 8.6(Reference: Air = 1)
Decomposition temperature (°F): Not applicable

Data on fire and explosion hazards:

Flash point (°F): No flash point
Flammability (°F): Not flammable
Auto-ignition temperature (°F): -
Auto-ignition temperature (°C): 405
Explosion limits (% v/v): No data available

Solubility:

Solubility in water: <12 ppm
n-octanol/water coefficient (LogKow): No data available
Solubility in fat (g/L): Not applicable

9.2. Other information:

Thermal stability: Stable under normal conditions.
Evaporation rate (n-butylacetate = 100): No data available
Other physical and chemical parameters: No data available.
Surface tension (mN/m): 13.6
Molecular Weight (g/mol): 250
Oxidizing properties: No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

No data available.

10.2. Chemical stability:

The product is stable under the conditions, noted in section 7 “Handling and storage”.

10.3. Possibility of hazardous reactions, including those associated with foreseeable emergencies:

None known.

10.4. Conditions to avoid:

None known.

10.5. Incompatible materials:

Strong acids
Bases
Strong oxidizing agents

10.6. Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity:

Product/substance	Methyl Perfluoroisobutyl Ether
Route of exposure:	Dermal
Test:	LD50
Result:	>5000 mg/kg

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Test:	LC50 (4 hours)
Result:	1000 mg/L

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat
Route of exposure:	Oral
Test:	LD50
Result:	>5000 mg/kg

Product/substance	Methyl Perfluorobutyl Ether
Route of exposure:	Dermal
Test:	LD50
Result:	>5000 mg/kg

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Test:	LC50
Result:	1000 mg/L

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Oral
Test:	LD50
Result:	>5000 mg/L

Skin corrosion/irritation:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rabbit
Result:	No adverse effect observed (Not irritating)

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rabbit
Result:	No adverse effect observed (Not irritating)

Serious eye damage/irritation:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rabbit
Result:	No adverse effect observed (Not irritating)

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rabbit
Result:	No adverse effect observed (Not irritating)

Respiratory sensitisation:

Product/substance	Methyl Perfluorobutyl Ether
Result:	For the components(s), either no data are available or the data are not sufficient for the classification.

Skin sensitisation:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Guinea pig
Result:	No adverse effect observed (not sensitising)

Product/substance	Methyl Perfluorobutyl Ether
Species:	Guinea pig
Result:	For the components(s), either no data are available or the data are not sufficient for the classification.

Germ cell mutagenicity:

Product/substance	Methyl Perfluoroisobutyl Ether
Conclusion:	No adverse effect observed

Product/substance	Methyl Perfluorobutyl Ether
Conclusion:	No adverse effect observed

Carcinogenicity:

Based on available data, the classification criteria are not met.

Reproductive toxicity:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat, female
Duration:	1 generation
Test:	NOAEL
Result:	129 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat, male
Duration:	1 generation
Test:	NOAEL
Result:	129 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat
Duration:	During gestation
Test:	NOAEL
Result:	307 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat, female
Duration:	1 generation
Test:	NOAEL
Result:	129 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat, male
Duration:	1 generation
Test:	NOAEL
Result:	129 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Duration:	During gestation
Test:	NOAEL
Result:	307 mg/L
Conclusion:	Not Classified

STOT-single exposure:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Dog
Route of exposure:	Inhalation
Target organ:	Central nervous system
Duration:	10 minutes
Test:	LOAEL
Result:	913 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Dog
Route of exposure:	Inhalation
Target organ:	Cardiac sensitization
Duration:	10 minutes
Test:	NOAEL
Result:	913 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Dog
Route of exposure:	Inhalation
Target organ:	Central nervous system
Duration:	10 minutes
Test:	LOAEL
Result:	913 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Dog
Route of exposure:	Inhalation
Target organ:	Cardiac sensitization
Duration:	10 minutes
Test:	NOAEL
Result:	913 mg/L
Conclusion:	Not Classified

STOT-repeated exposure:

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Target organ:	Liver
Duration:	13 weeks
Test:	NOAEL
Result:	155 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Target organ:	Endocrine system, liver, heart, hematopoietic system, immune system, nervous system, kidney/bladder
Duration:	13 weeks
Test:	NOAEL
Result:	155 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluoroisobutyl Ether
Species:	Rat

Route of exposure:	Oral
Target organ:	Endocrine system, liver, heart, hematopoietic system, immune system, nervous system, kidney/bladder
Duration:	28 days
Test:	NOAEL
Result:	1000 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Target organ:	Liver
Duration:	13 weeks
Test:	NOAEL
Result:	155 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Target organ:	Endocrine system, bone, teeth, nails/hair, hematopoietic system, heart, immune system, nervous system
Duration:	11 weeks
Test:	NOAEL
Result:	129 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Inhalation
Target organ:	Endocrine system, liver, heart, hematopoietic system, immune system, nervous system, kidney/bladder
Duration:	13 weeks
Test:	NOAEL
Result:	155 mg/L
Conclusion:	Not Classified

Product/substance	Methyl Perfluorobutyl Ether
Species:	Rat
Route of exposure:	Oral
Target organ:	Endocrine system, liver, heart, hematopoietic system, immune system, nervous system, kidney/bladder
Duration:	28 days
Test:	NOAEL
Result:	1000 mg/L
Conclusion:	Not Classified

Aspiration hazard:

Product/substance	Methyl Perfluorobutyl Ether
Conclusion:	No data available or the data is not sufficient for classification.

Long term effects:

None known.

Other information:

None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

No data available.

12.2. Persistence and degradability:
Based on available data, the classification criteria are not met.

12.3. Bioaccumulative potential:
Based on available data, the classification criteria are not met.

12.4. Mobility in soil:
No data available.

12.5. Results of PBT and vPvB assessment:
This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

12.6. Other adverse effects:
None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods:
This material can be reclaimed by TMC Industries. Contact TMC for more information.

RCRA Hazardous waste ("P" and "U" list) (40 CFR 261):
None of the components are listed

Specific labelling:

Contaminated packing:
Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: TRANSPORT INFORMATION

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
DOT	-	-	-	-	-	-
IMDG	-	-	-	-	-	-
IATA	-	-	-	-	-	-

* Packing group

** Environmental hazards

Additional information:
Not dangerous goods according to ADR, IATA and IMDG.

14.6. Special precautions for user:
Not applicable.

14.7. Transport in bulk according to IMO instruments:
No data available.

SECTION 15: REGULATORY INFORMATION

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

15.2. U.S. Federal regulations:

TSCA (the non-confidential portion):	Methyl Perfluoroisobutyl Ether is listed Methyl Perfluorobutyl Ether is listed
Clean Air Act:	None of the components are listed
EPCRA Section 302:	None of the components are listed
EPCRA Section 304:	None of the components are listed
EPCRA section 313:	None of the components are listed
CERCLA:	None of the components are listed
Hazardous chemical inventory reporting:	This product is not subject to Tier II reporting.

State regulations:

California / Prop. 65:	None of the components are listed
Massachusetts / Right To Know Act:	None of the components are listed
New Jersey / Right To Know Act:	None of the components are listed
New York / Right To Know Act:	None of the components are listed
Pennsylvania / Right To Know Act:	None of the components are listed

NFPA:
Health hazard: 3
Fire hazard: 1
Instability hazard: 0
Specific hazard: None

15.4. Restrictions for application:
Restricted to professional users.

15.5. Demands for specific education:
No specific requirements.

15.6. Additional information:
Not applicable.

15.7. Chemical safety assessment:
No

15.8. Sources:
OSHA Hazard Communication Standard (29 CFR 1910.1200)

SECTION 16: OTHER INFORMATION

The full text of identified uses as mentioned in section 1:
None known.

Abbreviations and acronyms:
ACGIH = American Conference of Governmental Industrial Hygienists
ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CERCLA = Comprehensive Environmental Response Compensation and Liability Act
DOT = Department of Transportation
EINECS = European Inventory of Existing Commercial chemical Substances
EPCRA = Emergency Planning and Community Right-To-Know Act

GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HCIS = Hazardous Chemical Information System
HNOC = Hazards Not Otherwise Classified
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
NFPA = National Fire Protection Association
NIOSH = National Institute for Occupational Safety and Health
OECD = Organisation for Economic Co-operation and Development
OSHA = Occupational Safety and Health Administration
PBT = Persistent, Bioaccumulative and Toxic
RCRA = Resource Conservation and Recovery Act
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SARA = Superfund Amendments and Reauthorization Act
SCL = A specific concentration limit.
STEL = Short-term exposure limits
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TSCA = The Toxic Substances Control Act
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information:

In accordance with HCS (29 CFR 1910.1200(g)), a safety data sheet is not required for this product. This safety data sheet has been created on a voluntary basis to distribute relevant information.

The safety data sheet is validated by:

TMC Industries, Inc. - QC Department

Other:

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a triangle.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
Country-language: US-en