

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

1 Identification

- **Product identifier**
- **Trade name:** 3M Novec™ Engineered Fluid 71DE
- **Product code:** 1-2820 (1004130)
- **Recommended use and restriction on use**
- **Recommended use:**
Forensics.
Laboratory chemicals
- **Restrictions on use:** Contact manufacturer
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Safariland, LLC
13386 International Parkway
Jacksonville, FL 32218
Customer Care (800) 347-1200
- **Emergency telephone number:**
ChemTel Inc.
+1 (800)255-3924, +1 (813)248-0585



2 Hazard(s) identification

- **Classification of the substance or mixture**
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**



GHS07

- **Signal word:** Warning
- **Hazard-determining components of labeling:**
trans-dichloroethylene
- **Hazard statements:**
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
- **Precautionary statements:**
P261 Avoid breathing mist/vapors/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves / eye protection / face protection.
P271 Use only outdoors or in a well-ventilated area.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

(Cont'd. on page 2)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 1)



P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 Call a POISON CENTER/doctor if you feel unwell.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P405 Store locked up.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

156-60-5	trans-dichloroethylene	49-51%
	 Flam. Liq. 2, H225  Acute Tox. 4, H332; Eye Irrit. 2A, H319; STOT SE 3, H336	

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
 For the wording of the listed Hazard Statements refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.
 Provide oxygen treatment if affected person has difficulty breathing.

· **After skin contact:**

Wash with soap and water.
 If skin irritation is experienced, consult a doctor.

· **After eye contact:**

Remove contact lenses if worn.
 Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.
 Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Dizziness
 Coughing
 Irritant to eyes.
 Disorientation

· **Danger:**

May cause drowsiness or dizziness.
 May be harmful if inhaled.

(Cont'd. on page 3)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 2)

- **Indication of any immediate medical attention and special treatment needed:**
If necessary oxygen respiration treatment.
If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** None.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information:** Cool endangered receptacles with water spray.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**
Wear protective equipment. Keep unprotected persons away.
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
Ensure adequate ventilation.
- **Environmental precautions:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Send for recovery or disposal in suitable receptacles.
- **Reference to other sections:**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
Prevent formation of aerosols.
Use only in well ventilated areas.
Avoid splashes or spray in enclosed areas.
- **Information about protection against explosions and fires:** No special measures required.

(Cont'd. on page 4)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 3)

- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Provide ventilation for receptacles.
- **Information about storage in one common storage facility:**
 - Store away from foodstuffs.
 - Store away from oxidizers, strong acids, strong bases.
- **Further information about storage conditions:** Keep containers tightly sealed.
- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

156-60-5 trans-dichloroethylene

PEL (USA)	Long-term value: 790 mg/m ³ , 200 ppm
REL (USA)	Long-term value: 790 mg/m ³ , 200 ppm
TLV (USA)	Long-term value: 793 mg/m ³ , 200 ppm
EL (Canada)	Long-term value: 200 ppm
EV (Canada)	Short-term value: 990 mg/m ³ , 250 ppm Long-term value: 790 mg/m ³ , 200 ppm
LMPE (Mexico)	Long-term value: 200 ppm

- **Exposure controls**
- **Engineering measures** Provide adequate ventilation.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - The usual precautionary measures for handling chemicals should be followed.
 - Keep away from foodstuffs, beverages and feed.
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes and skin.
- **Engineering controls:** No relevant information available.
- **Breathing equipment:**
 - For spills, respiratory protection may be advisable.
 - Use suitable respiratory protective device when aerosol or mist is formed.
- **Protection of hands:**



Protective gloves

- **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Protection may be required for spills.

(Cont'd. on page 5)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 4)

· **Limitation and supervision of exposure into the environment**

No relevant information available.

9 Physical and chemical properties

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

· **Appearance:**

Form: Liquid
 Color: Colorless

· **Odor:** Slight

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** 41 °C (106 °F)

· **Flash point:** The product will not flash.

· **Flammability (solid, gaseous):** Not applicable.

· **Auto-ignition temperature:** Not determined.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits**

Lower: Not determined.

Upper: Not determined.

· **Oxidizing properties:** Not determined.

· **Vapor pressure at 20 °C (68 °F):** 511 hPa (383 mm Hg) (383 mm Hg)

· **Density at 20 °C (68 °F):** 1.37 g/cm³ (11.433 lbs/gal)

· **Relative density:** Not determined.

· **Vapor density at 20 °C (68 °F):** 6.1 g/m³ (Air 4,8 / Air = 1,0)

· **Evaporation rate:** Not determined.

· **Solubility in / Miscibility with**

Water at 20 °C (68 °F): <100 g/l
 Slightly soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity**

Dynamic: Not determined.

Kinematic: Not determined.

VOC content: 100 Vol %

· **Other information** No relevant information available.

(Cont'd. on page 6)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 5)

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
Toxic fumes may be released if heated above the decomposition point.
- **Possibility of hazardous reactions:**
Reacts with strong acids and alkali.
Reacts with oxidizing agents.
- **Conditions to avoid:** No relevant information available.
- **Incompatible materials:** No relevant information available.
- **Hazardous decomposition products:**
Under fire conditions only:
Hydrogen fluoride
Hydrogen chloride (HCl)
Danger of toxic fluorine based pyrolysis products.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Based on available data, the classification criteria are not met.
- **On the eye:** Irritating effect.
- **Sensitization:** Based on available data, the classification criteria are not met.

· IARC (International Agency for Research on Cancer):
--

None of the ingredients are listed.

· NTP (National Toxicology Program):

None of the ingredients are listed.

· OSHA-Ca (Occupational Safety & Health Administration):

None of the ingredients are listed.

- **Probable route(s) of exposure:**

Ingestion.
Inhalation.
Eye contact.
Skin contact.

- **Acute effects (acute toxicity, irritation and corrosivity):**

May cause drowsiness or dizziness.
Irritating to eyes.
May be harmful if inhaled.

- **Repeated dose toxicity:** No relevant information available.

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

(Cont'd. on page 7)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 6)

- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** May cause drowsiness or dizziness.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information**
- **General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** Not regulated.

(Cont'd. on page 8)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 7)

- | | |
|--|-----------------|
| · UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | Not regulated. |
| · Transport hazard class(es) | |
| · DOT, ADR, IMDG, IATA | |
| · Class | Not regulated. |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | Not regulated. |
| · Environmental hazards | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

· Section 355 (extremely hazardous substances):

None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

· TSCA (Toxic Substances Control Act)

All ingredients are listed.

· Proposition 65 (California)

· Chemicals known to cause cancer:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency):

156-60-5 | trans-dichloroethylene

II

(Cont'd. on page 9)

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200) and WHMIS 2015 regulations

Printing date: March 23, 2016

Revision: March 23, 2016

Trade name: 3M Novec™ Engineered Fluid 71DE

(Cont'd. of page 8)

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health):**

None of the ingredients are listed.

· **Canadian substance listings**

· **Canadian Domestic Substances List (DSL):**

All ingredients are listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 03/23/2016 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids, Hazard Category 2

Acute Tox. 4: Acute toxicity, Hazard Category 4

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

SDS Prepared by:

ChemTel Inc.

1305 North Florida Avenue

Tampa, Florida USA 33602-2902

Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573

Website: www.chemtelinc.com