SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 06/15/2017 Version 1.2

SECTION 1.Identification

Product identifier

Product number	108183
Product name	Tetramethylsilane for the calibration of NMR spectra for NMR spectroscopy MagniSolv™
CAS-No.	75-76-3

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

Identified uses	Reagent for analysis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 1, H224

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H224 Extremely flammable liquid and vapor.

Precautionary Statements
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$(CH_3)_4Si$	$C_4H_{12}Si$ (Hill)
Molar mass	88.23 g/mol	

Hazardous ingredients

Chemical name (Concentration)
CAS-No.
tetramethylsilane (>= 90 % - <= 100 %)
75-76-3

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air.

Skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

Eye contact
After eye contact: rinse out with plenty of water.

Ingestion
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Cough, Unconsciousness, Headache, somnolence

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapors possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at +2°C to +8°C (+36°F to +46°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

Eye/face protection

Safety glasses

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.40 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.40 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 730 Camatril® -Velours (full contact), KCL 730 Camatril® -Velours (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment:

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapors/aerosols are generated.
Recommended Filter type: Filter AX (EN 371)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	No information available.
pH	Not applicable
Melting point	-139 °F (-95 °C)
Boiling point/boiling range	79 °F (26 °C) at 1,013 hPa
Flash point	-4 °F (-20 °C) DIN 51755 Part 1
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.0 %(V)
Upper explosion limit	37.9 %(V)
Vapor pressure	750 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	0.65 g/cm3 at 68 °F (20 °C)
Relative density	No information available.
Water solubility	0.02 g/l at 77 °F (25 °C)
Partition coefficient: n-octanol/water	log Pow: 3.24 (experimental) (Lit.) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.

Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	653 °F (345 °C) DIN 51794

SECTION 10. Stability and reactivity

Reactivity
Vapors may form explosive mixture with air.

Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions
Risk of ignition or formation of inflammable gases or vapors with:

Violent reactions possible with:

Strong oxidizing agents, Bases, Strong acids

Conditions to avoid
Warming.

Incompatible materials
no information available

Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Inhalation, Eye contact, Skin contact, Ingestion

Acute oral toxicity
LD50 Rat: > 2,000 mg/kg
OECD Test Guideline 401

Acute inhalation toxicity
LC50 Rat: > 21.3 mg/l; 4 h ; vapor
OECD Test Guideline 403

Symptoms: Possible damages:, mucosal irritations, Cough

Acute dermal toxicity
LD50 Rat: > 2,000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: No eye irritation
OECD Test Guideline 405

Sensitization
Buehler Test Guinea pig
Result: negative
Method: OECD Test Guideline 406

Repeated dose toxicity
Subacute toxicity

Genotoxicity in vitro
In vitro mammalian cell gene mutation test
Result: negative
Method: OECD Test Guideline 476

Mutagenicity (mammal cell test): chromosome aberration.
Result: negative
Method: OECD Test Guideline 473

Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Teratogenicity
Application Route: Inhalation
Rat
Number of exposures: daily
Method: OECD Test Guideline 422

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

After absorption of large quantities:
Headache, somnolence, Unconsciousness
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

NOEC Oncorhynchus mykiss (rainbow trout): 1.3 mg/l; 96 h
Analytical monitoring: yes
OECD Test Guideline 203

LC50 Oncorhynchus mykiss (rainbow trout): 1.9 mg/l; 96 h
Analytical monitoring: yes
OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

static test NOEC Daphnia magna (Water flea): > 103 mg/l; 48 h
Analytical monitoring: yes
OECD Test Guideline 202

static test EC50 Daphnia magna (Water flea): > 103 mg/l; 48 h
Analytical monitoring: yes
OECD Test Guideline 202

Toxicity to algae

static test NOEC Desmodesmus subspicatus (Scenedesmus subspicatus): >= 0.0079 mg/l; 72 h
Analytical monitoring: yes
OECD Test Guideline 201

static test EC50 Desmodesmus subspicatus (green algae): > 0.0079 mg/l; 72 h
Analytical monitoring: yes
OECD Test Guideline 201

Toxicity to bacteria

EC10 Pseudomonas putida: 17,100 mg/l; 3 h
DIN 38412 TEIL 8

Persistence and degradability

Biodegradability

Not readily biodegradable.

1 %; 28 d; aerobic
OECD Test Guideline 301D

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: 3.24
(experimental)
(Lit.) Bioaccumulation is not expected.

Mobility in soil

No information available.

Other adverse effects

Henry constant
430525 Pa*m³/mol
(Lit.) Distribution preferentially in air.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 2749
Proper shipping name	TETRAMETHYLSILANE
Class	3
Packing group	I
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 2749
Proper shipping name	TETRAMETHYLSILANE
Class	3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
IATA (Passenger)	**Not permitted for transport**

Sea transport (IMDG)

UN number	UN 2749
Proper shipping name	TETRAMETHYLSILANE
Class	3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

SECTION 15. Regulatory information

United States of America

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Remarks
No components are subject to the Massachusetts Right to Know Act.

New Jersey Right To Know

Ingredients
tetramethylsilane

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Labeling
Hazard pictograms

Signal Word
Danger

Hazard Statements
H224 Extremely flammable liquid and vapor.

Precautionary Statements
Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Full text of H-Statements referred to under sections 2 and 3.

H224	Extremely flammable liquid and vapor.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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