SAFETY DATA SHEET

1. Identification

Product identifier **DM-FLUID-5CS**

Other means of identification

Sales Code GIMKS3

Recommended use Silicones for cosmetics
Cosmetic additive

Recommended restrictions Industrial use only.

Manufacturer/Importer/Supplier/Distributor information

Name Shin-Etsu Silicones of America, Inc.

Address 1150 Damar Drive, Akron, OH 44305 USA

Contact Regulation compliance group

Telephone Number +1-330-630-9860

Fax Number +1-330-630-9855

Emergency Phone Number Chemtrec: +1-800-424-9300 (Within US)
Chemtrec: +1-703-527-3887 (Outside US)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 4
Health hazards	Reproductive toxicity (fertility)	Category 2
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

*Hazards not stated here are "Not classified", "Not applicable" or "Classification not possible".

Label elements

Signal word Warning

Hazard statement Combustible liquid. Suspected of damaging fertility.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Wear protective gloves/protective clothing/eye protection/face protection.

Response In case of fire : Use water fog, foam, dry chemical powder or carbon dioxide(CO2) to extinguish. IF exposed or concerned: Get medical advice/attention.

Storage Store in a well-ventilated place. Keep cool. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

HMIS® ratings Health: 1*
Flammability: 2
Physical hazard: 0

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Dimethylpolysiloxane		63148-62-9	100

Chemical name	Common name and synonyms	CAS number	%
Decamethylcyclopentasiloxane(Impurity)		541-02-6	1 - 3
Octamethylcyclotetrasiloxane (Impurity)		556-67-2	0.3 - 1
Dodecamethylcyclohexasiloxane(Impurity)		540-97-6	0.3 - 1

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse immediately with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention immediately.

Most important symptoms/effects, acute and delayed Not available.

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

General information IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical By heating and fire, harmful vapors/gases may be formed.

Special protective equipment and precautions for firefighters Firefighters must use standard protective equipment including flame retardant coat, helmet, gloves, rubber boots, and self-contained breathing apparatus.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Ensure adequate ventilation. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use.

Environmental precautions Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Provide adequate ventilation. Use care in handling/storage. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from open flames, hot surfaces and sources of ignition. Do not smoke. Pregnant or breastfeeding women must not handle this product. Do not breathe mist or vapor. Avoid prolonged exposure.

Conditions for safe storage, including any incompatibilities Store locked up. Keep away from heat, sparks and open flame. Store in a well-ventilated place. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Keep in original container.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
Decamethylcyclopentasiloxane(Impurity) (CAS 541-02-6)	TWA	10 ppm
Octamethylcyclotetrasiloxane (Impurity) (CAS 556-67-2)	TWA	10 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Tightly sealed safety glasses according to EN 166.

Skin protection

Hand protection Wear protective gloves.

Other Wear suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Color Colorless. Clear.

Odor Odorless

Odor threshold Not available.

pH Not measurable (Refer to water solubility)

Melting point/freezing point No data

Initial boiling point and boiling range No data

Flash point > 141.8 °F (> 61 °C) Closed Cup
215.6 °F (102 °C) Open Cup

Evaporation rate < 1 (Butyl Acetate=1)

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) No data

Explosive limit - upper (%) No data

Vapor pressure Negligible(25°C)

Vapor density > 1 (air=1)

Relative density 0.92 (25 °C)

Solubility(ies)

Solubility (water) Not soluble (<1 ppm)

Partition coefficient (n-octanol/water) No data

Auto-ignition temperature about 400°C (752°F)

Decomposition temperature Not available.

Viscosity 5 mm2/s (25 °C)

10. Stability and reactivity

Reactivity	No hazardous reaction known under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Thermal breakdown of this product during fire or very high heat condition may evolve the following hazardous decomposition product: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde .

11. Toxicological information

Information on likely routes of exposure

Inhalation	No significant effects are expected.
Skin contact	No significant effects are expected.
Eye contact	No significant effects are expected.
Ingestion	No significant effects are expected.
Symptoms related to the physical, chemical and toxicological characteristics	Not available.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Decamethylcyclopentasiloxane(Impurity) (CAS 541-02-6)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg bw/day (comparable to OECD 402)
Oral		
LD50	Rat	> 5000 mg/kg (comparable to the now deleted OECD 401)
Chronic		
Inhalation		
NOAEC	Rat	>= 160 ppm, 2 years (equivalent to OECD 453)
Subchronic		
Oral		
NOAEL	Rat	>= 1000 mg/kg bw/day, 90 days (OECD 408)
Dimethylpolysiloxane (CAS 63148-62-9)		
Acute		
Oral		
LD50	Rat	> 5000 mg/kg
Octamethylcyclotetrasiloxane (Impurity) (CAS 556-67-2)		
Acute		
Inhalation		
Vapor		
LC50	Rat	> 5000 mg/m3, 4 hours
Oral		
Liquid		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation
Patch Test(24Hr/Open) : Almost negative. [Dimethylpolysiloxane] [Decamethylcyclopentasiloxane]
SKIN-RABBIT : 500mg/24hr MILD [Octamethylcyclotetrasiloxane]

Serious eye damage/eye irritation
EYE-RABBIT : MILD [Octamethylcyclotetrasiloxane] [Decamethylcyclopentasiloxane]

Respiratory or skin sensitization

Respiratory sensitization
Not available.

Skin sensitization
No evidence of sensitization. [Octamethylcyclotetrasiloxane] [Decamethylcyclopentasiloxane]

Germ cell mutagenicity
Negative(Bacteria) [Octamethylcyclotetrasiloxane]
Negative(Bacteria)
Cytogenicity in mammalian cells: Negative in Chinese hamster V79 cells (OECD 473).
Mutagenicity in mammalian cells: Negative in L5178Y mouse lymphoma cells (similar to OECD TG 476). [Decamethylcyclopentasiloxane]

Carcinogenicity
Not classified for carcinogenicity based on the available data. [Decamethylcyclopentasiloxane]

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity
Octamethylcyclotetrasiloxane administered to rats by whole body inhalation at concentrations of 500 and 700 ppm for 70 days prior to mating, through mating, gestation and lactation resulted in decreases in live litter size. Additionally, increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia) were observed at these concentrations. Statistically significant alterations in these parameters were not observed in the lower concentrations evaluated (300 and 70 ppm). In a previous range-finding study, rats exposed to vapor concentrations of 700 ppm had decreases in the number of implantation sites and live litter size. The significance of these findings to humans is not known. [Octamethylcyclotetrasiloxane]
Not classified for reproductive toxicity based on the available data. [Decamethylcyclopentasiloxane]

Specific target organ toxicity - single exposure
Not classified for specific target organ toxicity - single exposure, based on the available data. [Decamethylcyclopentasiloxane]

Specific target organ toxicity - repeated exposure
Repeated inhalation or oral exposure of mice and rats to octamethylcyclotetrasiloxane produced an increase in liver size. No gross histopathological or significant clinical chemistry effects were observed. An increase in liver metabolizing enzymes, as well as a transient increase in the number of normal cells (hyperplasia) followed by an increase in cell size (hypertrophy) were determined to be the underlying causes of the liver enlargement. The biochemical mechanisms producing these effects are highly sensitive in rodents, while similar mechanisms in humans are insensitive.
A two year combined chronic and carcinogenicity assy was conducted on octamethylcyclotetrasiloxane. Rats were exposed by whole-body vapor inhalation 6hrs/day, 5days/week for up to 104weeks to 0, 10, 30, 150 or 700ppm of octamethylcyclotetrasiloxane. The increase in incidence of (uterine)endometrial cell hyperplasia and uterine adenomas(benign tumors) were observed in female rats at 700ppm. Since these effects only occurred at 700ppm, a level that greatly exceeds typical workplace or consumer exposure, it is unlikely that industrial, commercial or consumer uses of products containing octamethylcyclotetrasiloxane would result in a significant risk to humans. [Octamethylcyclotetrasiloxane]
Repeated inhalation or oral exposure of mice and rats to decamethylcyclopentasiloxane produced an increase in liver size. No gross histopathological or significant clinical chemistry effects were observed. An increase in liver metabolizing enzymes , as well as a transient increase in the number of normal cells (hyperplasia) followed by an increase in cell size (hypertrophy) were determined to be the underlying causes of the liver enlargement. The biochemical mechanisms producing these effects are highly sensitive in rodents, while similar mechanisms in humans are insensitive. [Decamethylcyclopentasiloxane]

Aspiration hazard
Not available.

Chronic effects
Not available.

12. Ecological information

Ecotoxicity

No acute effects up to solubility limit.
May cause long lasting harmful effects to aquatic life. Not partitioned to water to cause adverse effect to aquatic organisms. [Octamethylcyclotetrasiloxane]
Based on available data, the classification criteria are not met for hazardous to the aquatic environment.

Components		Species	Test Results
Decamethylcyclopentasiloxane(Impurity) (CAS 541-02-6)			
Aquatic			
Algae	EC50	Pseudokirchneriella subcapitata	> 12 µg/l, 72 hr
	NOEC	Pseudokirchneriella subcapitata	> 12 µg/l
Crustacea	EC50	Daphnia magna	> 2.9 µg/l, 48 hr
	NOEC	Daphnia magna	>= 15 µg/l, 21 day study : reproduction and growth
Fish	LC50	Oncorhynchus mykiss	> 16 µg/l, 96 hr
	NOEC	Oncorhynchus mykiss	>= 14.4 µg/l, 90 day study: fish early life-stages
Dodecamethylcyclohexasiloxane(Impurity) (CAS 540-97-6)			
Aquatic			
Algae	EC50	Algae	> 2 µg/l
	NOEC	Algae	>= 2 µg/l (solubility in medium)
Crustacea	NOEC	Aquatic invertebrate	>= 4.6 µg/l (solubility in medium)
Fish	NOEC	Fish	>= 4 µg/l (solubility in medium)
Octamethylcyclotetrasiloxane (Impurity) (CAS 556-67-2)			
Aquatic			
Acute			
Algae	ErC10	Pseudokirchneriella subcapitata	>= 22 µg/l, 96 h
	ErC50	Pseudokirchneriella subcapitata	> 22 µg/l, 96 h
Crustacea	EC50	Daphnia magna	> 15 µg/l, 48 h
	LC50	Americamysis bahia	> 9.1 µg/l, 96 h
Fish	LC50	Cyprinodon variegatus	> 6.3 µg/l, 14 d
			6.3 µg/l, 96 h
		Oncorhynchus mykiss	> 22 µg/l, 96 h
			10 µg/l, 14 d
	NOEC	Cyprinodon variegatus	> 63 µg/l, 14 d
		Oncorhynchus mykiss	4.4 µg/l, 14 d
Chronic			
Crustacea	NOEC	Daphnia magna	>= 15 µg/l, 21 d
Fish	NOEC	Oncorhynchus mykiss	>= 4.4 µg/l, 93 d fish early life stage toxicity

Persistence and degradability

Photolysis

Half-life (Photolysis-atmospheric)

Decamethylcyclopentasiloxane(Impurity)	10.4 days, indirect photolysis
Octamethylcyclotetrasiloxane (Impurity)	15.8 days, indirect photolysis

Half-life (Photolysis-soil)

Dodecamethylcyclohexasiloxane(Impurity)	9 days, indirect photolysis

Hydrolysis

Half-life (Hydrolysis)

Decamethylcyclopentasiloxane(Impurity)	73.4 days (pH 7 and 25 °C)
Dodecamethylcyclohexasiloxane(Impurity)	> 1 yr, at 25°C
Octamethylcyclotetrasiloxane (Impurity)	0.9 - 1 h (pH9; 25°C)

Hydrolysis

Half-life (Hydrolysis)

Octamethylcyclotetrasiloxane (Impurity)	1.8 h (pH4; 25°C) 69.3 - 144 h (pH7; 25°C)

Biodegradability

Percent degradation (Aerobic biodegradation-ready)

Decamethylcyclopentasiloxane(Impurity)	OECD 301, Not readily biodegradable.
Dodecamethylcyclohexasiloxane(Impurity)	OECD 301, Not readily biodegradable.
Octamethylcyclotetrasiloxane (Impurity)	OECD 301, Not readily biodegradable.

Percent degradation (Aerobic biodegradation-soil)

Decamethylcyclopentasiloxane(Impurity)	0.08 days Half-life in soil, at 22°C in tropical Wahiawa soil in closed system
Dodecamethylcyclohexasiloxane(Impurity)	1.38 days Half-life in soil, at 22°C in tropical Wahiawa soil in closed system
Octamethylcyclotetrasiloxane (Impurity)	0.04 days Half-life in soil, at 22 °C in tropical Wahiawa soil in closed system.

Bioaccumulative potential

The substance does not biomagnify in food-webs.
Trophic Magnification Factor (TMF) < 1 (field studies)
[Octamethylcyclotetrasiloxane]
The substance does not biomagnify in food-webs.
Trophic Magnification Factor (TMF) < 1 (field studies)
[Decamethylcyclopentasiloxane]
The substance does not biomagnify in food-webs.
Trophic Magnification Factor (TMF) < 1 (field studies)
[Dodecamethylcyclohexasiloxane]

Partition coefficient n-octanol / water (log Kow)

Decamethylcyclopentasiloxane(Impurity)	8.02 (25.3 °C)
Dodecamethylcyclohexasiloxane(Impurity)	8.87 (24 °C)
Octamethylcyclotetrasiloxane (Impurity)	6.49 (25.1 °C)

Biomagnification factor

Octamethylcyclotetrasiloxane (Impurity)	0.47, lipid-normalized steady-state Species: Carp (Cyprinus carpio)

Bioconcentration factor (BCF)

Decamethylcyclopentasiloxane(Impurity)	16200 lipid-normalized, kinetic Species: Pimephales promelas
Dodecamethylcyclohexasiloxane(Impurity)	2860 lipid-normalized, kinetic
Octamethylcyclotetrasiloxane (Impurity)	12400 Species: Fathead minnow (Pimephales promelas)

Mobility in soil

Adsorption

Soil/sediment sorption - log Kd

Decamethylcyclopentasiloxane(Impurity)	5.34, average

Soil/sediment sorption - log Koc

Decamethylcyclopentasiloxane(Impurity)	5.17, average
Dodecamethylcyclohexasiloxane(Impurity)	5.9, at 20°C
Octamethylcyclotetrasiloxane (Impurity)	4.22, average

Desorption

Soil/sediment desorption - log Kd

Octamethylcyclotetrasiloxane (Impurity)	4.3, average

Mobility in general

Volatility

Henry's law

Decamethylcyclopentasiloxane(Impurity)	3.13, indicating high potential of volatilization from water.
Dodecamethylcyclohexasiloxane(Impurity)	3.01, at 20°C
Octamethylcyclotetrasiloxane (Impurity)	Log Kaw = 2.69, indicating high potential of volatilization from water.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Follow applicable Federal, State and Local regulations.

14. Transport information

DOT

UN number	NA1993
UN proper shipping name	Combustible liquid, n.o.s. (Dimethylpolysiloxane)
Transport hazard class(es)	
Class	Combustible liq
Subsidiary risk	-
Label(s)	None
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB3, T1, T4, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	241

REGULATED IN TRANSPORT for packages of greater than 119 gallons or 450 liters volume.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

This product is not intended to be transported in bulk.

DOT

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Octamethylcyclotetrasiloxane (Impurity) (CAS 556-67-2)	1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
Classified hazard categories	Flammable (gases, aerosols, liquids, or solids) Reproductive toxicity

SARA 313 (TRI reporting)

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Decamethylcyclopentasiloxane(Impurity) (CAS 541-02-6)
Dodecamethylcyclohexasiloxane(Impurity) (CAS 540-97-6)
Octamethylcyclotetrasiloxane (Impurity) (CAS 556-67-2)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 06-26-2015

Revision date 06-28-2023

Version # 04

HMIS® ratings Health: 1*
Flammability: 2
Physical hazard: 0

NFPA ratings Health: 1
Flammability: 2
Instability: 0

NFPA ratings

Disclaimer

A number of potentially serious health effects can result from aerosol inhalation of this product. Take preventive measures such as controlling size of generated particle, ventilation, and respiratory protection when using this product in spray application. Please contact nearby sales representative for further information. This information is offered in good faith as typical values and not as a product specification. No warranty, expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.
This product has been designed, manufactured and developed solely for general industrial use only. This product is not designed for, intended for use as, or suitable for, medical, surgical or other particular purposes. Users have the sole responsibility and obligation to determine the suitability of this product for any application, to make preliminary tests, and to confirm the safety of this product for their use. Users must never use this product for the purpose of implantation into the human body and/or injection into humans.

Revision information

This document has undergone significant changes and should be reviewed in its entirety.