



PRODUCT SAFETY DATA SHEET

Moldsil 'VF' Catalyst

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Trade name: Moldsil 'VF' Catalyst
Company: Replication Technologies Ltd
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2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterization: Organotin compound

Hazardous Ingredients:

Name	CAS-No.	EINECS/ ELINCS No.	Conc. (% w/w)	Classification	
Silicic acid (H ₄ SiO ₄), tetraethyl ester, hydrolyzed	68412-37-3	270-184-7	21.0		
Dibutyltin dilaurate	77-58-7	201-039-8	14.0	Xn N	R20/21/22 R51/53
Trimethoxy(methyl)silane	1185-55-3	214-685-0	10.0	Xn	R22
Tetraethyl silicate	78-10-4	201-083-8	4.0	Xn Xi	R20 R36/37
Methanol	67-56-1	200-659-6	0.2	T	R39/23/24/25 R23/24/25

3. HAZARDS IDENTIFICATION

The principal hazards of the product as supplied are:

Flammable.

Harmful if swallowed.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

On contact with eyes	:	Flush with water.
On skin contact	:	Wipe off and wash with soap and water.
If inhaled	:	Remove to fresh air.
On ingestion	:	Obtain medical attention.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	:	Carbon dioxide, foam, dry powder or fine water spray. Water can be used to cool fire exposed containers.
Unsuitable extinguishing Media	:	None known.
Hazards during fire fighting	:	Electrostatic charges may be generated during transfer of product from its container. Ensure that all equipment is electrically earthed.
Special protective equipment/procedures	:	A self-contained respirator and protective clothing should be worn. Keep containers cool with water spray until well after the fire is out. Determine the need to evacuate or isolate the area according to your local emergency plan.
Hazardous Combustion Products	:	Silica. Carbon oxides and traces of incompletely burned carbon compounds. Formaldehyde. Metal products.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Wear proper protective equipment.
Precautions to protect the environment	:	Do not empty into drains. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth or other appropriate barriers
Methods for cleaning up	:	Determine the need to evacuate or isolate the area according to your local emergency plan. Eliminate all possible sources of ignition. Very large spills should be contained by bunding, etc... procedures. Mop, wipe or soak up with absorbent material and place in a container with a lid. The spilled product produces an extremely slippery surface.

7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid skin and eye contact. Do not breathe vapour. Do not ingest. General ventilation is required. Local ventilation is recommended.
Advice on storage	:	Store in a flameproof, well ventilated area. Electrostatic charges may be generated during transfer of product from its container. Ensure that all equipment is electrically earthed. Keep container tightly closed.
Specific uses	:	Refer to technical data sheet available on request.
Unsuitable packaging materials	:	None known.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<u>Engineering Controls</u>	:	Ventilation : Refer to Section 7
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Exposure controls for hazardous components

Name	CAS-No.	Exposure Limits
Silicic acid (H ₄ SiO ₄), tetraethyl ester, hydrolyzed	68412-37-3	10 ppm TWA; 30 ppm STEL as ethyl silicate.
Dibutyltin dilaurate	77-58-7	0.2 mg/m ³ STEL as Sn 0.1 mg/m ³ TWA as Sn
Trimethoxy(methyl)silane	1185-55-3	200 ppm TWA, 250 ppm STEL as methanol
Tetraethyl silicate	78-10-4	30 ppm STEL 10 ppm TWA 260 mg/m ³ STEL 87 mg/m ³ TWA
Methanol	67-56-1	250 ppm STEL 200 ppm TWA 333 mg/m ³ STEL 266 mg/m ³ TWA

Personal protection equipment

Respiratory protection	:	Suitable respiratory protection should be worn if the product is used in large quantities, confined spaces or in other circumstances where the OEL may be approached or exceeded.
Hand protection	:	Chemical protective gloves should be worn where repeated or prolonged contact can occur: Silver shield(TM). 4H(TM). Regarding glove's breakthrough time...,contact your chemical protective glove supplier.
Eye protection	:	Face shield or safety goggles.
Skin protection	:	Wear impervious overalls in circumstances where significant skin contact can occur.
Hygiene measures	:	Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.
Environmental exposure controls	:	Refer to section 6 and 12.
Additional information elevated	:	These precautions are for room temperature handling. Use at temperature or aerosol/spray applications may require added precautions. For further information regarding the use of silicones in consumer aerosol applications, please refer to the guidance document regarding the use of silicone-based materials in consumer aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact Replication Technologies Limited.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form: Liquid **Colour:** Colorless to pale yellow **Odour:** Very little

Other data

Boiling point/range	:	> 35 °C/95F
Flash point	:	33 °C (Closed Cup)
Explosive properties	:	No
Specific Gravity	:	0.995
Viscosity	:	40 mPa s at 25°C.
Oxidizing properties	:	No

The above information is not intended for use in preparing product specifications. Contact Replication Technologies Limited before writing specifications.

10. STABILITY AND REACTIVITY

Stability	:	Stable under normal usage conditions.
Conditions to avoid	:	None established.
Materials to avoid	:	Can react with strong oxidising agents.
Hazardous decomposition products	:	See section 11.

11. TOXICOLOGICAL INFORMATION

On contact with eyes ³	:	Slightly irritating.
On skin contact	:	No adverse effects are normally expected.
If inhaled ³	:	Mildly irritating to the respiratory system. May cause dizziness, drowsiness, confusion, headaches, nausea, and at high concentrations, unconsciousness.
On ingestion ³	:	Harmful if swallowed. Forms methanol and may cause serious injury to man at doses > 200 mg/kg.
Other Health Hazard Information	:	Product may emit formaldehyde vapours at temperatures above 150°C in the presence of air. Formaldehyde vapour is harmful by inhalation and irritating to eyes and respiratory system at breathing concentration less than one part per million (1 ppm).

¹ Based on product test data.

² Based on test data from similar products.

³ This information is based either on test data, extrapolation from tests on similar materials, review of component data, or a combination of these sources.

12. ECOLOGICAL INFORMATION

Environmental fate and distribution

This product hydrolyses in water or wet soil, releasing alcohols and silicic acid.

Ecotoxicity effects

Harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Bioaccumulation : Organotin compounds can bioaccumulate.

Fate and effects in waste water treatment plants

May cause adverse effects on bacteria.

13. DISPOSAL CONSIDERATIONS

Product disposal	:	Dispose of in accordance with local regulations.
Packaging disposal	:	Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

Road / Rail (ADR/RID)

UN No. : 1993
Proper Shipping Name : FLAMMABLE LIQUID, N.O.S. (NON VISCOUS)
(Contains SILICIC ACID, TETRAETHYL ESTER,
HYDROLYZED/METHYLTRIMETHOXYSILANE)
Class : 3
Packing group : III
Trem-Card : 30G35-A
Labels : ADR DANGER LABEL MODEL NO 3

Sea transport (IMDG)

UN No. : 1993
Proper Shipping Name : FLAMMABLE LIQUID, N.O.S.
(Contains SILICIC ACID, TETRAETHYL ESTER,
HYDROLYZED/METHYLTRIMETHOXYSILANE)
Class : 3
Packing group : III
Medical First Aid Guide (MFAG) : REFER TO THE EMERGENCY ACTION TABLE OF MFAG
Emergency Schedule (EmS) : 3-07
Marine pollutant : DIBUTYLTIN DILAURATE
Labels : FLAMMABLE LIQUID
MARINE POLLUTANT

Air transport (IATA)

UN No. : 1993
Proper Shipping Name : FLAMMABLE LIQUID, N.O.S.
(Contains SILICIC ACID, TETRAETHYL ESTER,
HYDROLYZED/METHYLTRIMETHOXYSILANE)
Class : 3
Packing group : III
Labels : FLAMMABLE LIQUID

15. REGULATORY INFORMATION

Labelling according to EEC Directive

Contains : Dibutyltin dilaurate
Symbols : Xn Harmful.
R-phrases : R10 Flammable.
R22 Harmful if swallowed.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases : S2 Keep out of the reach of children.
S24 Avoid contact with skin.

S51 Use only in well-ventilated areas.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

National legislation / regulations

Ozone depleting chemicals : No ozone depleting chemicals are present or used in manufacture.

Status

EINECS : All ingredients listed or exempt.
TSCA : All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

16. OTHER INFORMATION

This product safety data sheet was prepared in compliance with Commission Directive 91/155/EEC, 67/548/EEC and 1999/45/EC as well as their relevant amendments, on the approximation of laws, regulations and administrative provisions relative to the classification, packaging and labeling of dangerous substances and preparations.

It is the responsibility of persons in receipt of this Product Safety Data Sheet to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces a formulation containing the Replication Technologies Limited product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from the Replication Technologies Limited Product Safety Data Sheet to their own Product Safety Data Sheet in compliance with Commission Directive 1999/45/EC.

All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS. Replication Technologies Limited shall not be held responsible for any defect in the product covered by this SDS, should the existence of such defect not be detectable considering the current state of scientific and technical knowledge.

As stated above, this Safety Data Sheet has been prepared in compliance with applicable European law. If you purchase this material outside Europe, where compliance laws may differ, you should receive from Replication Technologies Limited supplier a SDS applicable to the country in which the product is sold and intended to be used. Please note that the appearance and content of the SDS may vary - even for the same product - between different countries, reflecting the different compliance requirements. Should you have any question, please refer to Replication Technologies Limited.

R20 Harmful by inhalation, **R20/21/22** Harmful by inhalation, in contact with skin and if swallowed, **R22** Harmful if swallowed, **R23/24/25** Toxic by inhalation, in contact with skin and if swallowed., **R36/37** Irritating to eyes and respiratory system., **R39/23/24/25** Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed., **R51/53** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.