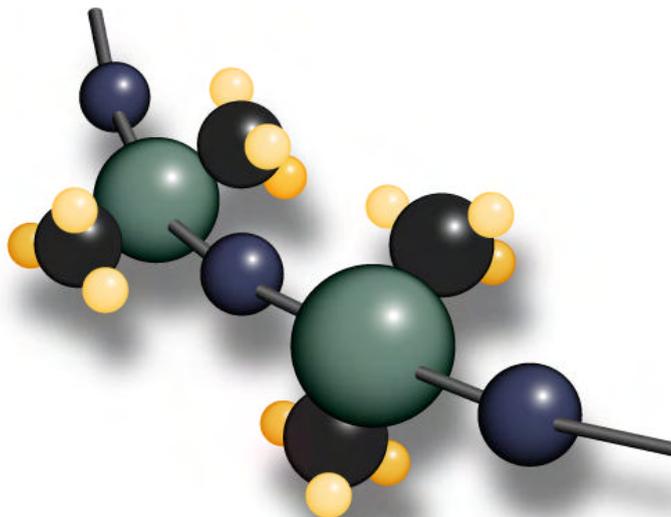


Polymer Systems Technology Limited

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MATERIAL SAFETY DATA SHEET

R4-3930-11 PART B

NuSil Technology LLC urges each customer or recipient of this MSDS to study it carefully to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals who are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to the use and understanding of the data contained in this MSDS.

To promote safe handling, each customer or recipient should: (1) notify its employees, agents, contractors, and others whom it knows or believes will use this material of the information regarding hazards or safety; (2) furnish this same information to each of its customers for the product; and (3) request its customers to notify their employees, customers and other users of the product of this information.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

NuSil Technology LLC 1050 Cindy Lane Carpinteria, California 93013 USA (805) 684-8780	EMERGENCY TELEPHONE NUMBERS: (800) 424-9300 CHEMTREC (805) 684-8780 OUTSIDE OF THE USA (703) 527-3887 CHEMTREC
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PRODUCT NAME: R4-3930-11 PART B

CHEMICAL NAME: N/A

CHEMICAL FAMILY: Fluorosilicone

FORMULA: Proprietary

MOLECULAR WEIGHT: N/A

SYNONYMS: N/A

CAS # : Mixture

2. HAZARDOUS INGREDIENTS

%	<u>MATERIAL</u>	<u>CAS #</u>	<u>EXPOSURE VALUE</u>	<u>CLASSIFICATION</u>
>90	Methyl-Isobutyl Ketone	108-10-1	See Section 8	See Section 7
<5	Silica, amorphous	7631-86-9	See Section 8	See Section 7

3. HAZARDS IDENTIFICATION

EFFECTS OF SINGLE OVEREXPOSURE:

SWALLOWING:

Danger, harmful or fatal if swallowed. May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation.

SKIN ABSORPTION:

Substance may be dermally absorbed resulting in systemic toxicity as detailed in SWALLOWING above.

INHALATION:

Causes irritation of the respiratory tract, experienced as nasal discomfort and discharge with chest pain and coughing. There may be difficulty in breathing.

SKIN CONTACT:

Causes irritation with discomfort, seen as local redness and possible swelling. Prolonged contact may result in drying and cracking of the skin due to a defatting action.

EYE CONTACT:

Liquid causes irritation, experienced as stinging, excess blinking and tear production, with excess redness and swelling of the conjunctiva.

EFFECTS OF REPEATED OVEREXPOSURE:

Prolonged or repeated inhalation exposure may cause kidney, liver and/or lung damage. Repeated skin contact may result in the development of cumulative dermatitis.

No injury from silica or other dust should occur during reasonable use. If use creates respirable particles, some respiratory system injury may occur. However, since the silica in this product is compounded into the polymer matrix, it is not expected to present the same hazards as neat silica.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:

Because of its irritating nature, this material may aggravate an existing dermatitis, and will irritate any existing exposed cuts or scrapes. Breathing vapor or mist may aggravate asthma and inflammatory or fibrotic pulmonary disease.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION:

None currently known.

OTHER EFFECTS OF OVEREXPOSURE:

None known.

4. FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING:

Aspiration hazard. If swallowed, vomiting may occur spontaneously, DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately..

SKIN:

Remove contaminated clothing and wash skin with soap and water. Wash clothing before reuse.

INHALATION:

Remove to fresh air. Give artificial respiration if not breathing. Oxygen may be given by qualified personnel if breathing is difficult. Obtain medical attention if there is continued difficulty in breathing.

EYES:

Immediately flush eyes thoroughly for at least 15 minutes. Obtain medical attention if discomfort persist.

NOTES TO PHYSICIAN:

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

FLASH POINT (test method(s)): 22.77°C / 72.99°F Estimated

FLAMMABLE LIMITS IN AIR (by volume):

LOWER: 8 % UPPER: 12 %

EXTINGUISHING MEDIA:

Use carbon dioxide, dry chemical, alcohol-type or universal-type foams applied by manufacturer's recommended technique. Water may be ineffective.

SPECIAL FIRE FIGHTING PROCEDURES:

Do not spray a solid stream of water or foam directly into a pool of hot, burning liquid as this may cause frothing, and may intensify the fire. Use self-contained breathing apparatus when fighting fire in an enclosed area.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition sources and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitivity to mechanical impact: Yes, if peroxides are formed. Sensitive to static discharge.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Avoid breathing vapors. Extinguish and do not turn on any ignition source until the area is determined to be free from explosion or fire hazards. See Section 5, "Unusual Fire and Explosion Hazards." Spills may be soaked up with absorbent and placed in a container for disposal.

WASTE DISPOSAL METHOD: Dispose of in accordance with all Federal, State and local regulations.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfer to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-spraking type tools and equipment, including explosion proof ventilation. Before using bulk quantities of this material, test for presence of explosive peroxides. Containers of this material may be hazardous when empty since they retain product residues(vapors, liquid); observe all warnings and precautions listed for this product.

Keep out of the reach of children	S2
Keep container in a well ventilated place	S9
Keep away from sources of ignition – No smoking	S16
Do not empty into drains	S29
Highly flammable	R11
Harmful by inhalation	R20
Irritating to eyes and respiratory system	R36/37
Repeated exposure may cause skin dryness or cracking	R66

Ignition may occur at typical elevated-temperature process conditions, especially in processes operating under vacuum if subjected to sudden ingress of air, or outside process equipment operating under elevated pressure if sudden escape of vapors or mists to the atmosphere occurs.

Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE VALUES AND SOURCE:

Methyl-Isobutyl Ketone: 100ppm – 8 hours TWA (OSHA)
50ppm – 8 hours TLV (ACGIH)
75ppm – STEL (ACGIH)

Silica, amorphous: 10 mg/m³ - 8 hours TWA (ACGIH)
6 mg/m³ - 8 hours TWA (OSHA, NIOSH)

RESPIRATORY PROTECTION:

If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn..

VENTILATION:

A system of local and/or general exhaust is recommended to keep employees below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

PROTECTIVE GLOVES: Polyvinyl alcohol (PVA) is a recommended material for personal protective equipment.

EYE PROTECTION : Safety goggles recommended.

OTHER PROTECTIVE EQUIPMENT: Eye wash and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES (based on typical material)

BOILING POINT: N/A

SPECIFIC GRAVITY (H₂O=1): <1

FREEZING POINT: N/A

VAPOR PRESSURE @ 25°C: N/A

VAPOR DENSITY (air=1): N/A

EVAPORATION RATE (n-Butyl Acetate=1): N/A

SOLUBILITY IN WATER (By wt): Insoluble

APPEARANCE: Translucent

ODOR: Solvent

PHYSICAL STATE: Liquid

PERCENT VOLATILES (by wt): 97% @ 21°C (70°F)

Note: The above information is not intended for use in preparing product specifications.

10. STABILITY AND REACTIVITY DATA

STABILITY: Stable under ordinary conditions of use and storage. May form explosive peroxides in air.

CONDITIONS TO AVOID: Heat flame, ignition sources and air.

INCOMPATIBILITY: Aldehydes, Nitric acid, and Perchloric acid. Oxidizing materials can cause a reaction. Violent reaction with Potassium-tert-butoxide

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:

Burning can produce carbon monoxide and carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

COMPONENT:

R4-3930-11 PART B:

Acute Oral LD ₅₀ (mg/kg):	2080 (Rat)
Acute Dermal LD ₅₀ (mL/kg):	>20 (Rbt.)
Acute Inhalation LC ₅₀ (mg/l):	N/A(Rat)
Other:	N/A.
Ames Test:	N/A.

Refer to Section 3 for further discussion of the health hazards associated with this preparation.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil this material may evaporate to a moderate extent. When released into water, this material may evaporate to a moderate extent. This material has an estimated bioconcentrationfactor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to have a half-life between 1 and 10 days.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all Federal, State, and local regulations.

14. TRANSPORT INFORMATION

I.A.T.A. HAZARD CLASSIFICATION:

Proper Shipping Name:	Methyl-Isobutyl Ketone solution
Hazard Class:	3
Hazard Label:	Flammable Liquid
UN Number:	UN1245
Packaging Group:	II

DOT HAZARD CLASSIFICATION:

Proper Shipping Name:	Methyl-Isobutyl Ketone solution
Hazard Class:	3
Hazard Label:	Flammable Liquid
UN Number:	UN1245
Packaging Group:	II

15. REGULATORY INFORMATION

STATUS ON SUBSTANCE LISTS:

The concentrations shown are maximum or ceiling levels (weight %) to be used for calculations for regulations. Trade Secrets are indicated by "TS".

C.H.I.P. REGULATIONS

Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 requires physico-chemical and health hazard determination of all substances and preparations manufactured, transported, stored, modified, or consumed within the U.K. Components present in this product at a level, which could require reporting under the statute, are:

<u>MATERIAL</u>	<u>CAS NUMBER</u>	<u>UPPER BOUND CONCENTRATION</u>
Methyl-Isobutyl Ketone	108-10-1	>90 %

FEDERAL EPA

Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal to or greater than the reportable quantities (RQ's) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are:

<u>MATERIAL</u>	<u>CAS NUMBER</u>	<u>UPPER BOUND CONCENTRATION</u>
Methyl-Isobutyl Ketone	108-10-1	>90 %

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40 CFR 355 (used for SARA 302, 304, 311, and 312). Components present in this product at a level which could require reporting under the statute are: *****NONE*****

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDS's that are copied and distributed for this material. Components present in this product at a level which could require reporting under this statute are:

<u>MATERIAL</u>	<u>CAS NUMBER</u>	<u>UPPER BOUND CONCENTRATION</u>
Methyl-Isobutyl Ketone	108-10-1	>90 %

INVENTORY STATUS

The ingredients of this product are listed on, or are exempt from listing on, the TSCA inventory.

STATE-RIGHT-TO-KNOW**CALIFORNIA Proposition 65**

This product contains no levels of listed substances, which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute.

MASSACHUSETTS 105 CMR 670.000 Right-To-Know, Substance List (MSL)

Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

<u>MATERIAL</u>	<u>CAS NUMBER</u>	<u>UPPER BOUND CONCENTRATION</u>
Methyl-Isobutyl Ketone	108-10-1	>90%
Silica, amorphous	07631-86-9	<5%

PENNSYLVANIA Right-To-Know, Hazardous Substance List

Hazardous Substances and Special Hazardous Substances on the List must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

<u>MATERIAL</u>	<u>CAS NUMBER</u>	<u>UPPER BOUND CONCENTRATION</u>
Methyl-Isobutyl Ketone	108-10-1	>90%
Silica, amorphous	07631-86-9	<5%

CALIFORNIA SCAQMD RULE 443.1 VOC'S:

Volatile Organic Components (VOC's) = Substances with vapor pressure of ≥ 0.5 mm Hg at 104°C (220°F). This product contains 97% Volatiles by wt @21°C (70°F).

OTHER REGULATORY INFORMATION:

EPA Hazard Categories : Fire Hazard
 Immediate Health Hazard
 Delayed Health Hazard

C.H.I.P. Regulations:

Designation: **R4-3930-11 PART B**
 Symbol: +F, Xn

Indication of Danger:	Highly flammable		Harmful	
Safety Phrases:	S2/S9/S16/S29			
(Ref. Sect. 7)	R11/R20/R36/37/R66			

16. OTHER INFORMATION

HMIS FORMAT:

Health: 2

Flammability: 3

Reactivity: 1

We believe that the information contained herein is current as of the date of this Material Safety Data Sheet, and is offered in good faith. Since the use of this information and of these opinions and the conditions of the use of the product are not within the control of NuSil Technology LLC, it is the user's obligation to determine the conditions of safe use of the product.

-NuSil Technology LLC Regulatory Compliance Department

Effective Date: January 19, 2012