Material Safety Data Sheet
BDCS Silylation Reagent

ACC# 16080

Section 1 - Chemical Product and Company Identification

MSDS Name: BDCS Silylation Reagent
Catalog Numbers: AC200940000, AC200940050, AC200941000, AC200948000
Synonyms: None known.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
68-12-2	Dimethylformamide		200-679-5
288-32-4	1-imidazole		206-019-2
18162-48-6	Tert-Butyldimethylsilyl Chloride		242-042-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: pale-yellow liquid. Flash Point: 57 deg C.
Danger! Corrosive. Causes eye and skin burns. **Combustible liquid and vapor.** May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Cancer suspect agent. May cause central nervous system depression. May cause cancer based on animal studies.
Target Organs: Central nervous system.

Potential Health Effects

Eye: Contact with eyes may cause severe irritation, and possible eye burns. May cause chemical conjunctivitis and corneal damage.
Skin: May cause severe irritation and possible burns. May cause cyanosis of the extremities. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.
Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects.
Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema. May cause systemic effects. Inhalation at high concentrations may cause CNS depression and asphixiation.
Chronic: May cause cancer according to animal studies. Effects may be delayed.

Section 4 - First Aid Measures

Eyes: Get medical aid. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
Ingestion: Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Combustible liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.
Extinguishing Media: Use agent most appropriate to extinguish fire. Cool containers with flooding quantities of water until well after fire is out. Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: 57 deg C (134.60 deg F)
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Dimethylformamide	10 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	10 ppm TWA; 30 mg/m3 TWA 500 ppm IDLH	10 ppm TWA; 30 mg/m3 TWA
1-imidazole	none listed	none listed	none listed
Tert-Butyldimethylsilyl Chloride	none listed	6 mg/m3 TWA (listed under Silica, amorphous).3000 mg/m3 IDLH (listed under Silica, amorphous).	none listed

OSHA Vacated PELs: Dimethylformamide: 10 ppm TWA; 30 mg/m3 TWA 1-imidazole: No OSHA Vacated PELs are listed for this chemical. Tert-Butyldimethylsilyl Chloride: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless - pale-yellow
Odor: Not available.
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: >1.0
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: Not available.
Specific Gravity/Density:.9590g/cm3
Molecular Formula: Solution
Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat.
Incompatibilities with Other Materials: Oxidizing agents
Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, oxides of nitrogen, irritating and toxic fumes and gases, carbon dioxide, oxides of silicon.
Hazardous Polymerization: Has not been reported

Section 11 - Toxicological Information

RTECS#:
CAS# 68-12-2: LQ2100000

CAS# 288-32-4: NI3325000
CAS# 18162-48-6: VV2000000
LD50/LC50:
CAS# 68-12-2:
Inhalation, mouse: LC50 = 9400 mg/m3/2H;
Inhalation, rat: LC50 = 3421 ppm/1H;
Inhalation, rat: LC50 = 3421 ppm/3H;
Inhalation, rat: LC50 = 1948 ppm/4H;
Oral, mouse: LD50 = 2900 mg/kg;
Oral, rabbit: LD50 = 5 gm/kg;
Oral, rat: LD50 = 2800 mg/kg;
Skin, rabbit: LD50 = 4720 mg/kg;
Skin, rat: LD50 = >3.2 gm/kg;
.

CAS# 288-32-4:
Oral, mouse: LD50 = 880 mg/kg;
Oral, rat: LD50 = 220 mg/kg;
.

CAS# 18162-48-6:
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Carcinogenicity:
CAS# 68-12-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 288-32-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 18162-48-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Has been found to cause cancer in laboratory animals.
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CORROSIVE LIQUIDS, N.O.S.	No information available.
Hazard Class:	8	
UN Number:	UN1760	
Packing Group:	II	

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 68-12-2 is listed on the TSCA inventory.
CAS# 288-32-4 is listed on the TSCA inventory.
CAS# 18162-48-6 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 68-12-2: Effective 4/13/89, Sunset 12/19/95
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 68-12-2: 100 lb final RQ; 45.4 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 68-12-2: immediate, fire.
CAS # 288-32-4: immediate.

Section 313

Dimethylformamide is not at a high enough concentration to be reportable under Section 313. No chemicals are reportable under Section 313.

Clean Air Act:

CAS# 68-12-2 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 68-12-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 288-32-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 18162-48-6 can be found on the following state right to know lists: California, (listed as Silica, amorphous), New Jersey, (listed as Silica, amorphous), Pennsylvania, (listed as Silica, amorphous), Minnesota, (listed as Silica, amorphous), Massachusetts, (listed as Silica, amorphous).

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 34 Causes burns.

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 28A After contact with skin, wash immediately with plenty of water .

WGK (Water Danger/Protection)

CAS# 68-12-2: 1

CAS# 288-32-4: 1

CAS# 18162-48-6: No information available.

Canada - DSL/NDSL

CAS# 68-12-2 is listed on Canada's DSL List.

CAS# 288-32-4 is listed on Canada's DSL List.

CAS# 18162-48-6 is listed on Canada's NDSL List.

Canada - WHMIS

This product has a WHMIS classification of E, B3, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 68-12-2 is listed on the Canadian Ingredient Disclosure List.

CAS# 18162-48-6 (listed as Silica, amorphous) is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 8/02/1999
Revision #4 Date: 10/03/2005