



SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY INFORMATION

Product Name(s): BIOFLEX
 Product Code(s): BIO-5
 Uses: Antimicrobial, elastomeric coating for insulation and related.
 Company: Controlled Release Technologies, Inc.
 Address: 1016 Industry Drive; Shelby, NC 28152; USA
 Telephone Number: (704) 487-0878 Fax Number: (704) 487-0877
 Emergency Telephone Number: ChemTel Inc. 1- (800) 255-3924; + 01 (813) 248-0585 (International)
 Date Issued: May 20, 2015 Date Revised: August 2, 2018
 This SDS complies with the OSHA Hazard Communication Standard 29CFR1910.1200 as revised in May 2012 (GHS). It may not meet requirements in other countries.

SECTION 2 HAZARDS IDENTIFICATION

GHS
 Classification: **WARNING**
 Skin Irritation (Category 2)
 Eye Irritation (Category 2B)



GHS Hazard
 Statements: Causes skin irritation
 Causes eye irritation

GHS
 Precautionary
 Statements: Prevention:
 Wash hands/skin thoroughly after
 handling.
 Wear protective gloves.

Response:
 If on skin: Wash with plenty of water/soap.
 If in eyes: Rinse cautiously with water for
 several minutes. Remove contact lenses, if
 present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical
 advice/attention.
 Take off contaminated clothing and wash it
 before reuse.

Storage:
 None.

Disposal:
 None.

GHS
 Assessment: Approximately 28% of this mixture consists of ingredient(s) of unknown acute toxicity.
 Approximately 34% of the mixture consists of ingredient(s) of unknown hazards to the
 aquatic environment.

SECTION 3 COMPOSITION / INGREDIENTS

Component	CAS Number	EC Number	Concentration
Water	7732-18-5	231-791-2	25 - 40%
Acrylic polymer	Proprietary	---	15 - 30%
Calcium carbonate	1317-65-3	215-279-6	15 - 30%
Titanium dioxide	13463-67-7	236-675-5	5 - 10%
Zinc oxide	1314-13-2	215-222-5	1 - 5%
Decabromodiphenyl oxide	1163-19-5	214-604-9	1 - 5%
Propylene glycol	57-55-6	200-338-0	1 - 5%

Trade Secret Claims: Specific chemical identity and/or exact percentage (concentration) of components has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES

- First Aid - Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention, if irritation develops.
- First Aid - Skin: In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately if irritation or rash develops and/or persists. Wash contaminated clothing before reuse.
- First Aid - Ingestion: If swallowed and feel unwell, call a physician or poison control center. DO NOT induce vomiting unless directed to do so by a physician or poison control center. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
- First Aid - Inhalation: If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.
- Important Symptoms / Effects – Acute and Delayed: Tissue redness/irritation.
- Advice to Physician: Treat symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

- Extinguishing Media: Treat surrounding material. Water spray, dry chemical, carbon dioxide, or foam is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.
- Specific Hazards: This product is not flammable. This product may give rise to hazardous vapors in a fire. Vapors/fumes may be irritating, corrosive and/or toxic.
- Protective equipment and procedures for fire-fighters: Wear full protective clothing and self-contained breathing apparatus.
- Additional Advice: None.

SECTION 6 ACCIDENTAL RELEASE MEASURES

- Spill Procedures: Wipe up spills with an absorbent towel/material and transfer into suitable containers for recovery or disposal. Finally flush area with water.

SECTION 6 ACCIDENTAL RELEASE MEASURES

- Personal Precautions: Wear suitable protective clothing.
- Environmental Precautions: Prevent the material from entering drains or water courses. Do not discharge directly to a water source. Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

SECTION 7 HANDLING AND STORAGE

- Handling: Wear appropriate personal protection (See Section 8) when handling this material. The work area must be equipped with a safety shower and eye wash station. If exposed to the liquid, avoid contact with skin and eyes. Wash thoroughly after handling.
- Storage: Keep container(s) tightly closed. Use and store this material at temperatures between 15.5 and 26.7°C (70-80°F) away from heat, direct sunlight and hot metal surfaces. Keep from freezing. Keep away from any incompatible materials (see Section 10).
- Additional Advice: Store in original container. Store as directed by the manufacturer.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Occupational Exposure Standards: Exposure limits are listed below, if they exist.
- Water: None.
- Acrylic polymer: None.
- Calcium carbonate: ACGIH TLV: 10 mg/m³ TWA.
OSHA PEL: 5 mg/m³ TWA (respirable).
OSHA PEL: 15 mg/m³ TWA (total dust).
- Titanium dioxide: ACGIH TLV: 3 mg/m³ TWA (respirable).
ACGIH TLV: 10 mg/m³ TWA (inhalable).
OSHA PEL: 15 mg/m³ TWA (total dust).
- Zinc oxide: ACGIH TLV: 2 mg/m³ TWA (respirable).
ACGIH TLV: 10 mg/m³ STEL (respirable).
OSHA PEL: 5 mg/m³ TWA (respirable).
OSHA PEL: 15 mg/m³ TWA (total dust).
- Decabromodiphenyl oxide: None.
- Propylene glycol: None.
- Engineering Control Measures: Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
- Respiratory Protection: A NIOSH certified self-contained breathing apparatus or air purifying respirator may be used under conditions where airborne concentrations are expected to exceed exposure limits.
- Hand Protection: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability).
- Eye Protection: Approved eye protection (safety glasses with side-shields or goggles) to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.
- Body Protection: Impervious clothing should be worn as needed to prevent skin contact.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	White
Odor:	Characteristic
Odor Threshold:	Not available.
pH:	7.5 - 8.5
Melting Point/Range (°C/°F):	0°C / 32°F (water)
Boiling Point/Range (°C/°F):	100°C / 212°F (water)
Flash Point (PMCC) (°C/°F):	Not flammable.
Evaporation Rate:	Not available.
Flammability / Explosivity Limits in Air (%):	Not available.
Vapor Pressure:	23.8 mmHg (25°C) (water)
Vapor Density (Air = 1):	Not available.
Relative Density:	1.3 g/cm ³ (25°C)
Solubility in Water:	Partly soluble.
Partition Coefficient:	Not available.
Autoignition Temperature (°C/°F):	Not available.
Decomposition Temperature (°C/°F):	Not available.
Viscosity:	Not available.
Explosive Properties:	None.
Oxidizing Properties:	None.
Volatile Organic Content (VOC) (g/l):	ca. 15 - 20 g/l (as defined by 40CFR51.100)

SECTION 10 STABILITY AND REACTIVITY

Reactivity:	Product will not undergo additional reaction.
Stability:	Stable under normal storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Contact with incompatible materials, excessive heat.
Incompatibilities:	Oxidizing agents, strong acids, strong bases.
Hazardous Decomposition Products:	Oxides of carbon, hydrogen bromide, bromine, metal oxides, aromatic and aliphatic compounds, toxic by-products.

SECTION 11 TOXICOLOGICAL INFORMATION

If available, toxicity data for the product is given; otherwise component data is listed.

Acute Toxicity:	This product is not expected to be appreciably toxic. (Water) No data. (Acrylic polymer) Oral LD50 (rat) > 5000 mg/kg; Dermal LD50 (rabbit) > 5000 mg/kg (Calcium carbonate) No data. (Titanium dioxide) Oral LD50 (rat) > 10,000 mg/kg; Dermal LD50 (rabbit) > 10,000 mg/kg; Inhalation LC50 (rat) > 6.8 mg/L (4 hr) (Zinc oxide) Oral LD50 (rat) > 5000 mg/kg; Inhalation LC50 (mouse) > 5-7
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SECTION 11 TOXICOLOGICAL INFORMATION

	mg/L (4 hr) (Decabromodiphenyl oxide) Oral LD50 (rat) > 2000 mg/kg; Dermal LD50 (rabbit) > 8000 mg/kg; Inhalation LC50 (rat) > 48.2 mg/l (1 hr) (Propylene glycol) Oral LD50 (rat) 21,000 mg/kg; Dermal LD50 (rabbit) 20,800 mg/kg
Skin Corrosion / Irritation:	The product may be irritating to the skin. (Water) No data. (Acrylic polymer) Irritating to skin. (Calcium carbonate) No data. (Titanium dioxide) Irritating to skin (human). (Zinc oxide) Slightly irritating to skin (guinea pig / rabbit). (Decabromodiphenyl oxide) Non-irritating to skin (rabbit). (Propylene glycol) Non-irritating to skin (rabbit).
Serious Eye Damage / Irritation:	The product may be irritating to the eyes. (Water) No data. (Acrylic polymer) Non-irritating to eye. (Calcium carbonate) No data. (Titanium dioxide) No data. (Zinc oxide) Slightly irritating to eyes (rabbit) (Decabromodiphenyl oxide) Non-irritating to eye (rabbit). (Propylene glycol) Non-irritating to eyes (rabbit).
Respiratory or Skin Sensitization:	The product is not expected to be dermally sensitizing. (Water) No data. (Acrylic polymer) No data. (Calcium carbonate) No data. (Titanium dioxide) No data. (Zinc oxide) Not dermally sensitizing (human patch testing). (Decabromodiphenyl oxide) Non-sensitizing (human patch test). (Propylene glycol) Not dermally sensitizing (guinea pig).
Mutagenicity:	This product is not expected to be mutagenic. (Water) No data. (Acrylic polymer) No data. (Calcium carbonate) No data. (Titanium dioxide) Not genotoxic in Ames and Syrian hamster embryo cell testing. (Zinc oxide) Not genotoxic in Ames and E. coli testing. Positive results have been observed in mouse lymphoma and Syrian hamster embryo systems. Slight increase in chromosomal aberrations in rat bone marrow was reported after exposure to zinc oxide by inhalation. (Decabromodiphenyl oxide) Not mutagenic (Ames and E. Coli test systems). Not mutagenic (bone marrow cytogenetics) (Propylene glycol) No evidence of mutagenicity (Ames).
Carcinogenicity:	This product is not expected to be carcinogenic in its present form. (Water) No data. (Acrylic polymer) No data. (Calcium carbonate) No data. (Titanium dioxide) Limited evidence for carcinogenicity in animals. There is inadequate evidence in humans. Studies related to inhalation of airborne particles. (Zinc oxide) Inadequate evidence in humans and animals. (Decabromodiphenyl oxide) Not carcinogenic (2 year feeding study – rat). (Propylene glycol) Not an animal carcinogen.
Reproductive / Developmental Toxicity:	This product may be reproductively harmful. (Water) No data. (Acrylic polymer) No data.

SECTION 11 TOXICOLOGICAL INFORMATION

	(Calcium carbonate) No data.
	(Titanium dioxide) No data.
	(Zinc oxide) In diets of 0.5% in rats there was no retardation of growth; at 1% retarded growth was observed. In pregnant rats, dietary zinc oxide at 4000 ppm zinc causes resorption and death of fetuses.
	(Decabromodiphenyl oxide) No effects on reproduction were observed in a one-generation study in rats at 100 mg/kg/day.
	(Propylene glycol) No adverse effects on reproduction were found when oral concentrations were <7.5% (rat).
Chronic/Subchronic	(Water) No data.
Toxicity: Specific Target	(Acrylic polymer) No data.
Organ/Systemic Toxicity –	(Calcium carbonate) No data.
Single Exposure:	(Titanium dioxide) No data.
	(Zinc oxide) No data.
	(Decabromodiphenyl oxide) No effects were observed in rats (NOAEL was 100 mg/kg/day).
	(Propylene glycol) Central nervous system effects have been observed in mice.
Chronic/Subchronic	(Water) No data.
Toxicity: Specific Target	(Acrylic polymer) No data.
Organ/Systemic Toxicity –	(Calcium carbonate) No data.
Repeated Exposure:	(Titanium dioxide) No data.
	(Zinc oxide) No data.
	(Decabromodiphenyl oxide) No data.
	(Propylene glycol) Degenerative changes to the kidneys and liver have been observed.
Aspiration Hazard:	This product is not expected to be an aspiration hazard.
Additional Information:	None.

SECTION 12 ECOLOGICAL INFORMATION

If available, ecological data for the product is given; otherwise component data is listed.

Acute Ecotoxicity:	This product is not expected to be appreciably toxic to aquatic species.
	(Water) No data.
	(Acrylic polymer) No data.
	(Calcium carbonate) No data.
	(Titanium dioxide) No data.
	(Zinc oxide) EC50 (tadpole) 3.2 mg/l/48 hr; LD0 (carp, forcefed) 228-262 mg/l/52 hr.
	(Decabromodiphenyl oxide) LC50 (Killifish) > 500 mg/l/48 hr.
	(Propylene glycol) LC50 (fathead minnows) 54.9 g/l/96h; EC50 (green algae) 19,000 mg/l/96h; EC50 (Daphnia magna) > 43,500 mg/l/48h.
Mobility:	(Water) No data.
	(Acrylic polymer) No data.
	(Calcium carbonate) No data.
	(Titanium dioxide) No data.
	(Zinc oxide) No data.
	(Decabromodiphenyl oxide) Expected to have no mobility based upon an estimated Koc of 61000.
	(Propylene glycol) Expected to have very high mobility in soil based upon an estimated Koc of 8.
Persistence/Degradability:	(Water) No data.
	(Acrylic polymer) No data.
	(Calcium carbonate) No data.

SECTION 12 ECOLOGICAL INFORMATION

	(Titanium dioxide) Not biodegradable.
	(Zinc oxide) No data.
	(Decabromodiphenyl oxide) Not biodegradable.
	(Propylene glycol) Readily biodegradable.
Bioaccumulation:	(Water) No data.
	(Acrylic polymer) No data.
	(Calcium carbonate) No data.
	(Titanium dioxide) No data.
	(Zinc oxide) No data.
	(Decabromodiphenyl oxide) BCF values of 0.3 to <50 suggest bioconcentration in aquatic organisms is low to moderate.
	(Propylene glycol) An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low.
Other adverse effects:	None.

SECTION 13 DISPOSAL CONSIDERATION

Environmental precautions:	Prevent the material from entering drains or water courses. Do not discharge directly to a water source. Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.
Product Disposal:	Dispose in accordance with all local, state (provincial), and federal regulations. Under RCRA, it is the responsibility of the product's user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
Container Disposal:	Do not remove label until container is thoroughly cleaned. Empty containers may contain hazardous residues. This material and its container must be disposed of in a safe way. Triple rinse container (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill (metal and plastic containers), or incinerate (plastic containers only), if allowed by state and local authorities, by burning.

SECTION 14 TRANSPORT INFORMATION

DOT Proper Shipping Name:	Not regulated
UN Number:	None.
UN Class:	None.
UN Packaging Group:	None.
Reportable Quantity:	None.
Marine Pollutant:	None.

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Consult current IATA Regulations prior to shipping by air.

SECTION 15 REGULATORY INFORMATION

US Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA):	This product has been registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA Registration Number: 59682-4
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SECTION 15 REGULATORY INFORMATION

US FIFRA Label Information:	<p>This chemical (mixture) is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:</p> <p>CAUTION</p>
US Toxic Substance Control Act:	<p>All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.</p>
Canadian Domestic Substance List:	<p>One or more component(s) of this product are not listed on the Canadian Domestic List. Limited quantities may be permitted.</p>
EU Existing Inventory of Chemical Substances:	<p>One or more component(s) of this product are not in compliance with the inventory listing requirements of the E.U. Existing Inventory of Chemical Substances (EINECS). One or more component(s) of this product have not been pre-listed under REACH. Limited quantities may be permitted.</p>
TSCA Sec.12(b) Export Notification:	<p>This product contains a chemical at or above de minimis concentrations which requires reporting:</p> <ul style="list-style-type: none"> - Decabromodiphenyl oxide (Section 4 and 5)
Canadian WHMIS Classification:	<p>D.2.B</p> <p>This product has been classified in accordance with the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.</p>
Massachusetts Right-To-Know:	<p>This product contains materials subject to disclosure under the Massachusetts' Right-To-Know Law:</p> <ul style="list-style-type: none"> - Calcium carbonate - Titanium dioxide - Zinc oxide (fume) - Decabromodiphenyl oxide
New Jersey Right-To-Know:	<p>This product contains materials subject to disclosure under the New Jersey's Right-To-Know Law:</p> <ul style="list-style-type: none"> - Calcium carbonate (4001) - Titanium dioxide (1861) - Zinc oxide (fume) (2037) - Decabromodiphenyl oxide (0598) - Propylene glycol (3595)
Pennsylvania Right-To-Know:	<p>This product contains materials subject to disclosure under the Pennsylvania's Right-To-Know Law:</p> <ul style="list-style-type: none"> - Calcium carbonate - Titanium dioxide - Decabromodiphenyl oxide - Propylene glycol
California Proposition 65:	<p>This product contains materials which the State of California has found to cause cancer, birth defects or other reproductive harm:</p> <ul style="list-style-type: none"> - Titanium oxide (airborne particles) - Diphenyl ketone (< 0.15%) - Acrylonitrile (trace) - Dioxane, 1,4- (trace) - Ethylene oxide (trace) - Lead (trace) - Cadmium (trace)

SECTION 15 REGULATORY INFORMATION

SARA TITLE III-Section 311/312 Categorization (40 CFR 370):	Immediate (acute) hazard										
SARA TITLE III-Section 313 (40 CFR 372):	This product contains materials which are listed in Section 313 at or above de minimis concentrations: - Zinc oxide (as zinc compounds) - Decabromodiphenyl oxide										
CERCLA Hazardous Substance (40 CFR 302)	This product contains materials subject to reporting under CERCLA and Section 304 of EPCRA: - Zinc oxide (as zinc compounds)										
Water Hazard Class (WGK):	This product is slightly water-endangering (WGK=1).										
Other Chemical Inventories:	<table> <tr> <td>Australia (AICS):</td><td>One or more component(s) not listed.</td></tr> <tr> <td>China (IECSC):</td><td>One or more component(s) not listed.</td></tr> <tr> <td>Japan (ENCS):</td><td>One or more component(s) not listed.</td></tr> <tr> <td>Korea (KCI):</td><td>One or more component(s) not listed.</td></tr> <tr> <td>Philippines (PICCS):</td><td>One or more component(s) not listed.</td></tr> </table>	Australia (AICS):	One or more component(s) not listed.	China (IECSC):	One or more component(s) not listed.	Japan (ENCS):	One or more component(s) not listed.	Korea (KCI):	One or more component(s) not listed.	Philippines (PICCS):	One or more component(s) not listed.
Australia (AICS):	One or more component(s) not listed.										
China (IECSC):	One or more component(s) not listed.										
Japan (ENCS):	One or more component(s) not listed.										
Korea (KCI):	One or more component(s) not listed.										
Philippines (PICCS):	One or more component(s) not listed.										

SECTION 16 OTHER INFORMATION

NFPA Rating - HEALTH:	1		
NFPA Rating - FIRE:	0		
NFPA Rating - REACTIVITY:	0		
NFPA Rating - SPECIAL:	NONE		
SDS Date Issued:	May 20, 2015		
SDS Current Version:	2.1	Version Date:	August 2, 2018
SDS Revision History:	v1.0 Initial version. v2.0 SDS revised to align with US FIFRA requirements. v2.1 Company logo changed.		
Abbreviations:	GHS: Globally Harmonized System of Classification and Labeling of Chemicals CAS#: Chemical Abstract Services Number ACGIH: American Conference of Governmental Industrial Hygienists OSHA: Occupational Safety and Health Administration NFPA: National Fire Protection Association DOT: US Department of Transportation RCRA: US Resource Conservation and Recovery Act TLV: Threshold Limit Value TWA: Time-Weighted Average PEL: Permissible Exposure Limit STEL: Short Term Exposure Limit WEEL: Workplace Environmental Exposure Levels AIHA: American Industrial Hygiene Association NTP: National Toxicology Program IARC: International Agency for Research on Cancer R: Risk S: Safety LD50: Lethal Dose 50% LC50: Lethal Concentration 50% EC50: Effective Concentration 50% BCF: Bioconcentration Factor BOD: Biological Oxygen Demand Koc: Soil Organic Carbon Partition Coefficient.		

SECTION 16 OTHER INFORMATION

Tlm: Median Tolerance Limit

Key References:

United States National Library of Medicine's TOXNET
Patty's Toxicology, 5th Edition
European Commission's Institute for Health and Consumer Protection
American Conference of Governmental Industrial Hygienists
International Agency for Research on Cancer
United States National Toxicology Program
United States Occupational Safety and Health Administration
United States Department of Transportation
Supplier Material Safety Data Sheets

Disclaimer:

The data contained herein is based on information that the company believes to be reliable, but no expressed or implied warranty is made with regard to the accuracy of such data or its suitability for a given situation. Such data relates only to the specific product described and not to such products in combination with any other product and no agent of the company is authorized to vary any of such data. The company and its agents disclaim all liability for any action taken or foregone on reliance upon such data.

Prepared by:

ChemOne Compliance, LLC