

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS Standards, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Directives

1. PRODUCT IDENTIFICATION

<u>TRADE NAME (AS LABELED):</u>	GumLast™
<u>PRODUCT NUMBER:</u>	All grades of GumLast™ perfluoroelastomer parts, in all colors
<u>CHEMICAL NAME/CLASS:</u>	Mixture
<u>U.N. NUMBER:</u>	NA
<u>U.N. DANGEROUS GOODS CLASS/SUBSIDIARY RISK:</u>	Non-Regulated
<u>MANUFACTURER'S NAME:</u>	FloDynamix, LLC
<u>ADDRESS:</u>	1155 Park Avenue, Emeryville, CA 94608 USA
<u>EMERGENCY PHONE:</u>	(800) 424-9300 (CHEMTREC)
<u>BUSINESS PHONE:</u>	(866) 996-8436 (Product Information)
<u>DATE OF PREPARATION:</u>	April 1, 2010
<u>DATE OF LAST REVISION:</u>	June 22, 2011

2. COMPOSITION and INFORMATION ON INGREDIENTS

Hazardous Ingredients:	CAS #	EC #	WT %	Hazard Classification; Risk Phrases
TFE/HFP/VDF Terpolymer	25190-89-0	NE	60 – 80%	NONE LISTED
Accelerators and Curatives reacted with above to form cured elastomer	Proprietary	NA	<10%	NONE LISTED
Phosphoramamine, triphenyl-Chloride	1100-88-5	NE	Proprietary	[T] TOXIC Risk Phrases: R25, R36, R37, R38
Silicon Dioxide	7631-86-9	231-545-4	0 – 5%	NONE LISTED Risk Phrases: R20
Magnesium Oxide	1309-48-4	215-171-9	0 – 10%	NONE LISTED Risk Phrases: R36, R37, R38
Zinc Compounds	1314-13-2	215-222-5	0 – 5%	[Xn] HARMFUL Risk Phrases: R20, R36, R37
Carbon Black	1333-86-4	215-609-9	0 – 10%	NONE LISTED
Wollastonite	13983-17-0	237-772-5	0 – 5%	NONE LISTED

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard JIS Z 7250: 2000.

See Section 3 for full text of Risk Phrases and Safety Phrases

3. HAZARD IDENTIFICATION

EU DANGEROUS PREPARATIONS DIRECTIVE (DPD) LABELING AND CLASSIFICATION: This product does not meet the definition of any hazard class, as defined by the European Union Council Directives 67/548/EEC and 1999/445/EC and subsequent Directives. For information on classification under CLP Regulation (EC) 1271/2008, please refer to section 16 (Other Information).

Classification: Not Applicable
Safety Phrases: Not Applicable

Risk Phrases: Not Applicable
Annex II Hazard Symbol: Not Applicable

MATERIAL SAFETY DATA SHEET

EMERGENCY OVERVIEW: **Product Description:** This product is a cured perfluoroelastomer in various configurations and colors. **Health Hazards:** No known health effects from cured perfluoroelastomer. **Flammability Hazards:** This material has a non-flammable rating. **Environmental Hazards:** Toxicity to aquatic life is expected to be low based on insolubility in water. **Emergency Considerations:** In the event of fire Emergency responders must wear personal protective equipment suitable for the situation to which they are responding.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of overexposure for this product are by inhalation of fumes from overheating or burning this product or smoking tobacco contaminated with polymer may cause polymer fume fever, a flu-like illness with chills and fever. The symptoms may not occur for several hours after exposure, and go away in 24 – 48 hours even in the absence of treatment.

INHALATION: Inhalation of low concentrations of hydrogen fluoride can initially include symptoms of choking, coughing, and severe eye, nose and throat irritation.

CONTACT WITH EYES: If particles contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

INGESTION: Not considered a normal route of entry.

HEALTH EFFECTS OR RISKS FROM EXPOSURE:

ACUTE: Inhalation of fumes from heated or burning product can result in polymer fume fever. Contact with eyes can cause mechanical irritation.

CHRONIC: No information found.

TARGET ORGANS: **Acute:** Respiratory system. **Chronic:** None known

4. FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

SKIN EXPOSURE: Wash with soap and water after handling. Use good hygiene practices.

EYE EXPOSURE: If this product enters the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. Seek medical attention if irritation persists.

INHALATION: If fumes generated by this product from overheating or burning are inhaled, remove contaminated individual to fresh air. If breathing is difficult, give oxygen. Seek medical attention immediately.

INGESTION: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if necessary.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures to hydrogen fluoride.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Does not Flash

AUTOIGNITION TEMPERATURE: Not Applicable

FLAMMABLE LIMITS (in air by volume, %): Not Applicable

FIRE EXTINGUISHING MATERIALS:

Water Spray: Yes

Carbon Dioxide: Yes

Foam: Yes

Dry Chemical: Yes

Halon: Yes

Other: Any "C" Class

UNUSUAL FIRE AND EXPLOSION HAZARDS: Hazardous gases/vapors produced in a fire are hydrogen fluoride, carbonyl fluoride, carbon monoxide, low molecular weight fluorocarbons. A fire could form hydrogen fluoride fumes which react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from a fire involving these products.

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

MATERIAL SAFETY DATA SHEET

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used.

SPILLS: Shovel or sweep up and place in container for reuse or disposal.

Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations, including those of Canada and its Provinces, those of Australia, Japan and EU Member States (see Section 13, Disposal Considerations).

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors generated by this product. Use in a well-ventilated location.

STORAGE AND HANDLING PRACTICES: Protect from physical damage and contamination. Keep away from heat and incompatible materials.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use a chemical fume hood or local exhaust ventilation, and process enclosure if necessary, to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

EXPOSURE LIMITS/GUIDELINES:

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR									
		ACGIH-TLVs		OSHA-PELs		NIOSH-RELs		NIOSH	AIHA WEELs		OTHER
		TWA	STEL	TWA	STEL	TWA	STEL	IDLH	TWA	STEL	
Carbon Black	1333-86-4	3.5 mg/m ³	NE	3.5 mg/m ³	NE	3.5 mg/m ³	NE	3.5 mg/m ³	3.5 mg/m ³	N.E	DFG MAKs:

NE = Not Established.

NIC = Notice of Intended Change

See Section 16 for Definitions of Terms Used.

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

RESPIRATORY PROTECTION: When temperatures exceed 400°C and ventilation is inadequate to maintain exposure limits, use a positive pressure air supplied respirator. Use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998) or the regulations of various U.S. States, Canada, EU Member States, or those of Japan. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, and the European Standard EN166, Australian Standards, or relevant Japanese Standards. Maintain eye wash fountain and quick drench facilities in the work area.

HAND PROTECTION: Use neoprene gloves when handling refuse involved in a fire. If necessary, refer to U.S. OSHA 29 CFR 1910.138, the European Standard DIN EN 374, the appropriate Standards of Canada, Australian Standards, or relevant Japanese Standards.

BODY PROTECTION: Use body protection appropriate for task (e.g. lab coat, overalls). If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY: Not Applicable (Air=10)

SPECIFIC GRAVITY @ 20°C: 2 (water=1)

SOLUBILITY IN WATER: Insoluble

EVAPORATION RATE (n-BuAc=1): NA

MELTING POINT: NA

BOILING POINT: NA

MATERIAL SAFETY DATA SHEET

VAPOR PRESSURE, mm Hg @ 20°C (68°F): Not Applicable

pH: ~ NA

ODOR: None

APPEARANCE and COLOR: Various colors and shapes

10. STABILITY and REACTIVITY

STABILITY: Stable

DECOMPOSITION PRODUCTS: Above 204°C small amounts of carbon monoxide and carbon dioxide. Above 400°C small amounts of hydrogen fluoride and perflurorolefine.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Incompatible with molten alkali metals, interhalogen compounds.

HAZARDOUS POLYMERIZATION: Has not been reported

CONDITIONS TO AVOID: Extreme temperatures, incompatibles

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The specific toxicology data available for components greater than 1% in concentration are as follows. Suspected animal carcinogen and probable human carcinogen.

TOXICITY DATA:

CARBON BLACK

ORL-RAT ALD: >25,100 mg/kg

SUSPECTED CANCER AGENT: A component of this product is found on one or more of the following lists: FEDERAL OSHA Z LIST, NTP, IARC, or CAL/OSHA and therefore is considered to be, or suspected to be, cancer-causing agents by these agencies. Carbon Black IARC 2B

IRRITANCY OF PRODUCT: This product when used as intended is not irritating to skin, eyes and respiratory system.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: The components of this product are not reported to produce mutagenic effects in humans.

Embryotoxicity: The components of this product are reported to produce embryotoxic effects in humans.

Teratogenicity: The components of this product are reported to cause teratogenic effects in humans.

Reproductive Toxicity: The components of this product are reported to cause reproductive effects in humans.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL FATE: Toxicity is expected to be low based on insolubility in water.

ECOLOGICAL DATA:

Fish: No data available

Algae: No data available

Daphnia: No data available

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

14. TRANSPORTATION INFORMATION

US DOT, IATA, IMO, ADR:

PROPER SHIPPING NAME: Not Regulated

HAZARD CLASS NUMBER: NA

UN IDENTIFICATION NUMBER: NA

PACKING GROUP: NA

DOT LABEL(S) REQUIRED: NA

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER, 2004: NA

MARINE POLLUTANT: This product is not designated as a marine pollutant by the Department of Transportation (49 CFR 172.101, Appendix B).

INTERNATIONAL AIR TRANSPORT ASSOCIATION SHIPPING INFORMATION (IATA): This product is not considered as dangerous goods.

MATERIAL SAFETY DATA SHEET

INTERNATIONAL MARITIME ORGANIZATION SHIPPING INFORMATION (IMO): This product is not considered as dangerous goods.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is not considered by the United Nations Economic Commission for Europe to be dangerous goods.

15. REGULATORY INFORMATION

ADDITIONAL UNITED STATES REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: The components of this product are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, and are listed as follows:

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

U.S. CERCLA REPORTABLE QUANTITY (RQ): None

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The components of this product are not on the Proposition 65 Lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: The components of this product are on the DSL or NDSL Inventories

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: Not Classified

CANADIAN INGREDIENT DISCLOSURE LIST: None

EUROPEAN ECONOMIC COMMUNITY INFORMATION:

EU DANGEROUS PREPARATIONS DIRECTIVE (DPD) LABELING AND CLASSIFICATION: This product does not meet the definition of any hazard class, as defined by the European Union Council Directives 67/548/EEC and 1999/445/EC and subsequent Directives. For information on classification under CLP Regulation (EC) 1271/2008, please refer to section 16 (Other Information).

Classification: Not Applicable

Risk Phrases: Not Applicable

Safety Phrases: Not Applicable

Annex II Hazard Symbol: Not Applicable

EUROPEAN ECONOMIC COMMUNITY INFORMATION FOR CONSTITUENTS: The following information is available for the components of this product.

Carbon Black:

EU EINECS/ELINCS NUMBER: 215-609-9

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: The components of this product are listed on the AICS.

HAZARDOUS SUBSTANCES INFORMATION SYSTEM: None

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

JAPANESE ENCS INVENTORY: The components of this product are on the ENCS Inventory as indicated in the section on International Chemical Inventories, below.

POISONOUS AND DELETERIOUS SUBSTANCES CONTROL LAW: No component of this product is a listed Specified Poisonous Substance under the Poisonous and Deleterious Substances Control Law.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Hydrogen Peroxide is listed on the following inventories:

Asia-Pac: Listed

Australian Inventory of Chemical Substances (AICS): Listed

Korean Existing Chemicals List (ECL): Listed

Japanese Existing National Inventory of Chemical Substances (ENCS): Listed

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed

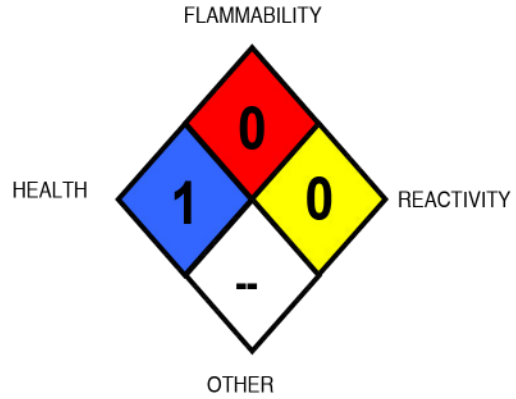
Swiss Giftliste List of Toxic Substances: Listed

U.S. TSCA: Listed

MATERIAL SAFETY DATA SHEET

16. OTHER INFORMATION

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH HAZARD		(BLUE)	1
FLAMMABILITY HAZARD		(RED)	0
PHYSICAL HAZARD		(YELLOW)	0
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	SEE SECTION 8		SEE SECTION 8
For Routine Industrial Use and Handling Applications			



NFPA RATING

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate
3 = Serious 4 = Severe * = Chronic hazard

PREPARED BY: Paul Eigbrett - MSDS Authoring Services

DATE UPDATED: June 22, 2011

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of FloDynamix Technologies, LLC. The data on this sheet are related only to the specific material designated herein. FloDynamix Technologies, LLC assumes no legal responsibility for use or reliance upon this data.

End of MSDS