Turtl

NOVA Chemicals®

Material Safety Data Sheet

Material Name: SURPASS® Polyethylene-Not Colored (All Grades) **MSDS ID: NOVA-0031A**

Section 1 - Product and Company Identification

Synonyms: sHDPE, sVLDPE, sLLDPE, sLMDPE, sMDPE Polyethylene resins, ethylene polymers
Chemical Name: Polyethylene
Chemical Family: Polymer
Material Use: Thermoplastic resin extruded into film, sheet or pipe, or molded into bottles, containers, lids and other items.
Chemical Formula: $(CH_2)(CH_2)_x$

NOVA Chemicals
P.O. Box 2518, Station M
Calgary, Alberta, Canada T2P 5C6

Product Information: 1-412-490-4063
MSDS Information Email:
msdsemail@novachem.com

EMERGENCY Telephone Numbers:
North America (Canada and US):
1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)
1-800-424-9300 (CHEMTREC-USA) (24 hours)
1-613-996-6666 (Canutec-Canada) (24 hours)
Mexico and South America: +44 208 762 8322 (NCEC) (24 hours)

Section 2 - Hazards Identification

HMIS Ratings: Health: 0* **Fire:** 1 **Physical Hazard:** 0 **Personal Protection:** safety glasses, gloves, respirator
*Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard*
NFPA Ratings: Health: 0 **Fire:** 1 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Emergency Overview

CAUTION! Product is a clear to white, non-toxic solid pellet or granular powder having minimal odor. Dusts and heat-released air emissions may be irritating to the eyes, skin, and respiratory system. Accumulated fine dusts may form explosive air-dust mixtures. Spilled product may create a dangerous slipping hazard. Keep released pellets away from storm sewers and from entry into other aquatic systems. Under fire conditions, product will readily burn and emit a heavy, irritating smoke. Contact with molten material may cause serious thermal burns.

Potential Health Effects: Eye

Contact of powder or fines with eye may cause mechanical irritation. Contact with hot or molten material may cause severe injury, including possible blindness.

Potential Health Effects: Skin

Contact of powder or fines with skin may cause mild to more serious irritation, that is increased by mechanical rubbing or if skin is dry. Contact with hot or molten material may cause severe thermal burns. The talc is inextricably bound or coated in the polyethylene; this appears to prevent any toxic reaction to the skin.

Potential Health Effects: Ingestion

Ingestion of this product is unlikely. However, ingestion of product may produce mild gastrointestinal irritation and disturbances.

Potential Health Effects: Inhalation

Inhalation of fine particles may cause respiratory irritation. Fumes produced while thermal processing may cause irritation, pulmonary edema and a possible asthma-like response. The talc is inextricably bound or coated in the polyethylene; this appears to prevent any toxic reaction to the lungs.

Section 3 - Composition/Information on Ingredients

CAS #	Component	Percent by Wt.
26221-73-8	Polyethylene (1-Octene polymer with ethene) *	>98
14807-96-6	Talc (Hydrated Magnesium Silicate) **	0-1.5
Not available	Additives ***	0-1

Additional Information

* This product may also be described as polyethylene (ethene homopolymer) (CAS # 9902-88-4). Ethene and ethylene are interchangeable.

** This is 'antiblock'. It is added to some SURPASS resin grades (e.g. film resins).

*** Other chemical additives including antioxidants, UV stabilizers, processing aids and slip agents may be formulated into various polyethylene resin grades in a total concentration of less than 1% wt/wt.

This product is NOT considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
This material is NOT a controlled product under Canadian WHMIS regulations.
This material is NOT REGULATED as a hazardous material /dangerous goods for transportation.

See Section 8 for applicable exposure limits. See Section 11 for applicable toxicity data.

Section 4 - First Aid Measures

First Aid: Eyes

Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention if symptoms develop or persist.

First Aid: Skin

Remove dusty or contaminated clothing and shoes. For skin contact, wash affected area with soap and water. Seek medical attention if symptoms develop or persist. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

First Aid: Inhalation

Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist. Inhalation of smoke following a fire may result in delayed pulmonary edema; seek immediate medical attention.

First Aid: Ingestion

Material is not expected to be absorbed from the gastrointestinal tract. DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention.

First Aid: Notes to Physician

After adequate first aid, no further treatment is necessary, unless symptoms reappear. For more detailed medical emergency support information call 1-800-561-6682 or 1-403-314-8767 (24 hours, NOVA Chemicals Emergency Response). Burns should be treated as thermal burns. Molten resin will come off as healing occurs; therefore, immediate removal from the skin is not necessary. Treatment should be directed at the control of symptoms and the clinical condition of the patient. Ingested material should pass through the digestive system without injury. The talc is inextricably bound or coated in the polyethylene; this appears to prevent any toxic reaction to the skin or lungs (if inhaled).

Section 5 - Fire Fighting Measures

See Section 9: Physical Properties for flammability limits, flash point and auto-ignition information.

General Fire Hazards

Solid resins support combustion but do not meet combustible definition. Under fire conditions, product will readily burn and emit a heavy, irritating black smoke. A high concentration of airborne powders or dust may form an explosive mixture with air

Explosion Hazards

Accumulated fine dusts may form an explosive mixture with air. Risk of dust-air explosion is increased if flammable vapors are also present. May accumulate hazardous static charge.

Hazardous Combustion Products

Upon heating, polyethylene may emit various oligomers, waxes and oxygenated hydrocarbons as well as carbon dioxide, carbon monoxide and small amounts of other organic vapors (e.g. aldehydes, acrolein). Inhalation of these decomposition products may be hazardous.

Extinguishing Media

Water fog or water spray. In the case of small fires, dry chemical or carbon dioxide or foam can be used. Avoid high pressure, direct water stream that may spread molten or burning resins.

Fire Fighting Equipment/Instructions

Position upwind. Keep unnecessary personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Fire fighters should wear full-face, self-contained breathing apparatus and thermal protective clothing. Avoid inhaling any smoke and combustion materials. Remove and clean or destroy any contaminated clothing. Cool containers with flooding quantities of water until well after the fire is out. Control runoff waters to prevent entry into sewers, drains, underground or confined spaces and waterways.

Section 6 - Accidental Release Measures

Evacuation Procedures

Isolate area. Keep unnecessary personnel away. Alert stand-by emergency and fire fighting personnel.

Spills

Stop leak, isolate and contain spill. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways. Spilled product may create a dangerous slipping hazard. Use appropriate tools to put the spilled solid in an appropriate disposal or recovery container. Reuse or recycle where possible.

Special Procedures

Contact local police/emergency services and appropriate emergency telephone numbers provided in Section 1. Ensure that statutory and regulatory reporting requirements in the applicable jurisdiction are met. Wear appropriate protective equipment and clothing during cleanup. Individuals without appropriate protective equipment should be excluded from area of spill until cleanup has been completed.

See Section 8 for recommended Personal Protective Equipment and see Section 13 for waste disposal considerations.

Section 7 - Handling and Storage

Handling Procedures

Handle in contained and properly designed equipment systems. Use with adequate ventilation. Avoid ingestion and inhalation. Keep away from uncontrolled heat and incompatible materials. Ground all material handling and transfer equipment to dissipate build-up of static electricity. Keep handling areas free of loose pellets, powders and dust build-up. Every effort should be made to prevent the accumulation of powders or fine dusts around material handling systems. Accumulated powders or fine dusts may form explosive air-dust mixtures. For additional information on control of static and minimizing potential dust and fire hazards, refer to NFPA-654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2006 Edition." Spilled product may create a dangerous slipping hazard.

Storage Procedures

Storage area should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store in closed, grounded and properly designed vessels, away from uncontrolled heat and incompatible materials. Avoid accumulation of dust by frequent cleaning and suitable construction of storage and handling areas. Keep shovels and vacuum systems readily available for cleanup of loose material. **DO NOT** enter filled bulk containers and attempt to walk over product, due to risk of slipping and possible suffocation. Use a fall arrest system when working near open bulk containers.

See Section 8: Exposure Controls/Personal Protection for appropriate Personal Protective Equipment. See Section 10 for information on Incompatibilities.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines

A: General Product Information

Refer to published exposure limits - use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are proximal to work locations.

Note: In this product, any talc content is inextricably bound or coated in the polyethylene. This appears to prevent any toxic reaction to the lungs. Thus the ACGIH exposure limits for Particles (Insoluble or Poorly Soluble) Not Otherwise Specified (PNOS) are considered applicable.

B: Component Exposure Limits

ACGIH, OSHA, NIOSH, EPA, Alberta, and Ontario exposure limit lists have been checked for major components listed with CAS registry numbers. Other exposure limits may apply, check with proper authorities.

*Note: The Vacated OSHA Permissible Exposure Limits (PELs) are those provided in the 1989 update to OSHA's Air Contaminants Standard 29 CFR 1910.1000. These limits were vacated by the U.S. Court of Appeals, Eleventh Circuit but may be enforceable in some states.

Polyethylene (1-Octene polymer with ethene) (26221-73-8) or Polyethylene (Ethene homopolymer) (9002-88-4)

ACGIH:	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) (related to Particulates (insoluble or poorly soluble) not otherwise specified (PNOS))
OSHA (Vacated)*:	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Particulates not otherwise regulated)
OSHA (Final):	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (related to Particulates not otherwise regulated)
Alberta:	10 mg/m3 TWA (total particulate); 3 mg/m3 TWA (respirable particulate) (related to Particulates not otherwise regulated)
Ontario:	10 mg/m3 TWAEV (inhalable); 3 mg/m3 TWAEV (respirable) (related to Particles (insoluble or poorly soluble) Not Otherwise Specified (PNOS))

Talc (Hydrated Magnesium Silicate) (14807-96-6)

ACGIH:	2 mg/m3 TWA (respirable fraction, particulate matter containing no asbestos and <1% crystalline silica)
OSHA (Vacated)*:	2 mg/m3 TWA (respirable dust, less than 1% crystalline silica)
NIOSH:	2 mg/m3 TWA (respirable dust, containing no asbestos and less than 1% quartz) 1000 mg/m3 IDLH (containing no asbestos and <1% quartz)
Alberta:	2 mg/m3 TWA (containing no asbestos fibres, respirable particulate)
Ontario:	2 mg/m3 TWAEV (containing no asbestos fibres, respirable) (particulate matter containing no asbestos and less than 1% crystalline silica)

ENGINEERING CONTROLS

Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses during normal handling. Wear full-face shield during thermal processing if contact with molten material is likely.

Personal Protective Equipment: Skin/Hands/Feet

To avoid burns from contact with molten product, use thermal insulating gloves and other protective clothing (such as long sleeved shirts and long pants). Safety footwear with good traction is recommended to help prevent slipping.

Personal Protective Equipment: Respiratory

If engineering controls and ventilation is not sufficient to prevent buildup of aerosols, vapors or dusts, appropriate NIOSH/MSHA approved air-purifying respirators or self-contained breathing apparatus (SCBA) appropriate for exposure potential should be used. Air supplied breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

Personal Protective Equipment: General

Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain, and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

Section 9 - Physical & Chemical Properties

Physical State and Appearance:	Solid, pellets or granular powder	**Color:**	Clear to white
Odor:	Minimal, sweet	**pH:**	Not applicable
Vapor Pressure:	Not applicable	**Vapor Density @ 0°C (Air=1):**	Not applicable
Boiling Point:	Not applicable	**Melting Point:**	105°C - 135°C (221°F - 275°F)
Solubility (H2O):	Insoluble	**Specific Gravity (Water=1):**	0.905 - 0.970
Dispersion Properties:	Is not dispersed in cold water, hot water	**Evaporation Rate (n-Butyl Acetate=1):**	Not applicable
Decomposition Temperature:	Varies; >300°C (>572°F)	**Softening Point:**	85°C - 127°C (185°F - 261°F)
Flash Point:	Not applicable	**Flash Point Method:**	Not applicable
Upper Flammable Limit (UFL):	Not applicable	**Lower Flammable Limit (LFL):**	Not applicable
Flammability Classification:	Not flammable	**Auto Ignition:**	330°C - 410°C (630°F - 770°F)

Section 10 - Stability & Reactivity Information

Chemical Stability

This product is stable under normal use conditions for shock, vibration, pressure, or temperature.

Chemical Stability: Conditions to Avoid

Avoid strong oxidizing agents. Avoid processing material over 300°C (572°F).

Incompatibility

May react with strong oxidizing agents. Organic solvents, ether, gasoline, lubricating oils, chlorinated hydrocarbons and aromatic hydrocarbons may react with and degrade polyethylene. Powders or dusts may form an explosive mixture with air. Risk of dust-air explosion is increased if flammable vapors are also present.

Hazardous Polymerization

Not likely to occur.

Corrosivity

Product is not corrosive.

Hazardous Decomposition

Upon heating, polyethylene may emit various oligomers, waxes and oxygenated hydrocarbons as well as carbon dioxide, carbon monoxide and small amounts of other organic vapors (e.g. aldehydes, acrolein). Inhalation of these decomposition products may be hazardous.

Section 11 - Toxicological Information

A: Acute Toxicity - General Product Information

Material is considered essentially inert and non-toxic. Exposures to high levels of dust or heated fumes may cause irritation and possible pulmonary edema. Contact with molten material may cause severe thermal burns.

The following information has been found for its components. However, the product is expected to present a lesser degree of hazard since the hazardous components are incorporated in a polymer matrix:

Talc (Hydrated Magnesium Silicate) - Inhalation may cause discomfort or irritation to the respiratory tract and nasal passages. May be irritating to eyes and skin.

B: Acute Toxicity - LD50/LC50

Polyethylene (1-Octene polymer with ethene) (26221-73-8) or Polyethylene (Ethene homopolymer) (9002-88-4)

Inhalation LC50 Mouse: 12 gm/m3/30M

C: Chronic Toxicity - General Product Information

Product has minimal chronic toxicity. Target organ is the respiratory system. Most polyethylene dust particles are large and non-respirable. There are no known or reported reproductive or genetic effects.

The following information has been found for its components. However, the product is expected to present a lesser degree of hazard since the hazardous components are incorporated in a polymer matrix:

Talc (Hydrated Magnesium Silicate) - target organ is the lung and respiratory system. May cause chronic lung disease (talc pneumoconiosis).

D: Chronic Toxicity - Carcinogenic Effects

ACGIH, EPA, IARC, OSHA, and NTP carcinogen lists have been checked for selected similar materials or those components with CAS registry numbers.

Polyethylene (1-Octene polymer with ethene) (26221-73-8) or Polyethylene (Ethene homopolymer) (9002-88-4)

IARC: Supplement 7 [1987], Monograph 19 [1979] (Group 3 (not classifiable))

Talc (Hydrated Magnesium Silicate) (14807-96-6)

ACGIH: A4 – Not Classifiable as a Human Carcinogen (containing no asbestos fibers); A1 - Confirmed Human Carcinogen (containing asbestos fibers)

NTP: Items Under Consideration: Human epidemiological studies. Management Status Report - Evidence of Carcinogenicity: Male rats/some evidence; Female rats/clear evidence; Mice/No evidence

IARC: Monograph 93 posted (inhaled), Supplement 7 [1987]; Monograph 42 [1987] (Group 3 (not classifiable))

Section 12 - Ecological Information

Ecotoxicity

A: General Product Information

Polyethylene is an essentially biologically inert solid and considered non-toxic. It is stable (does not decompose) in landfills or in aquatic systems.

B: Component Analysis - Ecotoxicity - Aquatic/Terrestrial Toxicity

Talc (Hydrated Magnesium Silicate) (14807-96-6)

96 Hr LC50 Brachydanio rerio: >100 g/L [semi-static]

Environmental Fate/Mobility

If released into watercourses, most polyethylene pellets float. Pellets are persistent in aquatic and terrestrial systems. Product should be recovered from water and land following spills. This product has not been found to migrate through soils.

Persistence/Degradability

Product does not readily degrade. Under optimal oxidation conditions, >99% of polyethylene will remain intact after exposure to microbial actions. Product will slowly change (embrittle) in the presence of sunlight, but will not fully breakdown. Product buried in landfill has been found to be stable over time. No toxic degradation products are known to be produced.

Bioaccumulation/Accumulation

Pellets may accumulate in the digestive systems of birds and aquatic life, causing injury and possible death due to starvation.

Section 13 - Disposal Considerations

U.S./Canadian Waste Number & Descriptions

A: General Product Information

This product is not known to generate hazardous wastes according to US and Canadian regulations. The use, mixing or processing of this product may alter this product. Check federal, provincial/state and local environmental regulations prior to disposal. Preferred disposal methods for polymers in order of preference are: 1) clean and reuse if possible, 2) recover and resale through plastic recyclers or resin brokers, 3) incinerate with waste heat recovery and 4) landfill. Reuse, recycling, storing, transportation and disposal must be in accordance with applicable federal, provincial/state and local regulations. DO NOT ATTEMPT TO DISPOSE OF BY UNCONTROLLED INCINERATION. Open burning of plastics at landfills should not be undertaken.

See Section 7: Handling and Storage and Section 8: Exposure Controls/Personal Protection for additional handling information that may be applicable for safe handling and the protection of employees.

Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Section 14 - Transportation Information

US DOT Information

Shipping Name: NOT REGULATED as a Hazardous Material for Transportation.

Canadian TDG Information

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

International Air Transport Association (IATA) and ICAO Information

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

International Maritime Dangerous Goods (IMDG) Code

Shipping Name: NOT REGULATED as Dangerous Goods for Transportation.

Section 15 - Regulatory Information

A: International Regulations

Component Analysis - International Inventory Status

Component	CAS #	US - TSCA	CANADA - DSL	EU - EINECS
Polyethylene (1-Octene, polymer with ethene)	26221-73-8	Yes	Yes	Exempt
Talc (Hydrated Magnesium Silicate)	14807-96-6	Yes	Yes	Yes
Polyethylene (Ethene homopolymer)	9002-88-4	Yes	Yes	Exempt

B: USA Federal & State Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or State regulations. Check for applicable regulations.

The EPA Storm Water Regulations classify resin pellets as "significant materials". Prevent pellets from entering drains, ditches or waterways. Site emission reporting may be required. Check applicable regulations.

USA OSHA Hazard Communication Class

According to 29 CFR 1910.1200 (Hazard Communication), polyethylene polymer product is not hazardous.

USA Right-to-Know - Federal

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

USA Right-to-Know - State

The following components appear on one or more of the following state hazardous substances lists. Some components (including those present only in trace quantities, and therefore not listed in this document) may be included on the Right-To-Know lists of other U.S. states. The reader is therefore cautioned to contact his or her NOVA Chemicals' representative or NOVA Chemicals' Product Integrity group for further U.S. State Right-To-Know information.

Component	CAS	NJ	PA
Talc (Hydrated Magnesium Silicate)	14807-96-6	Yes	Yes

C: Canadian Regulations - Federal and Provincial

Canadian Environmental Protection Act (CEPA): All components of this product are on the Domestic Substances List (DSL) and are acceptable for use under the provisions of CEPA.

WHMIS Ingredient Disclosure List (IDL)

No components are listed on the WHMIS Ingredient Disclosure List (IDL).

WHMIS Classification

Workplace Hazardous Materials Information System (WHMIS): This product has been classified in accordance with Canadian Controlled Product Regulations (CPR) hazard criteria and this MSDS contains complete CPR-required information.

NOT CONTROLLED under WHMIS.

Other Regulations

Ongoing occupational hygiene, medical surveillance programs, or site emission or spill reporting may be required by Federal or Provincial regulations. Check for applicable regulations.

Section 16 - Other Information

Label Information

CAUTION! Product is a clear to white, non-toxic solid pellet or granular powder having minimal odor. Dusts and heat-released air emissions may be irritating to the eyes, skin, and respiratory system. Accumulated fine dusts may form explosive air-dust mixtures. Spilled product may create a dangerous slipping hazard. Keep released pellets away from storm sewers and from entry into other aquatic systems. Under fire conditions, product will readily burn and emit a heavy, irritating smoke. Contact with molten material may cause serious thermal burns.

FIRST AID:

SKIN: Remove dusty or contaminated clothing and shoes. For skin contact, wash affected area with soap and water. Seek medical attention if symptoms develop or persist. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product, or molten product that has cooled, from skin without medical assistance.

EYES: Remove contact lenses, if it can be done safely. Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention if symptoms develop or persist.

INHALATION: Move affected individual to non-contaminated air. Loosen tight clothing such as a collar, tie, belt or waistband to facilitate breathing. Seek immediate medical attention if the individual is not breathing, is unconscious or if any other symptoms persist. Inhalation of smoke following a fire may result in delayed pulmonary edema; seek immediate medical attention.

INGESTION: Material is not expected to be absorbed from the gastrointestinal tract. DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. Seek immediate medical attention.

IN CASE OF A SPILL: Stop leak, isolate and contain spill. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways. Spilled product may create a slipping hazard. Use appropriate tools to put the spilled solid in an appropriate disposal or recovery container. Reuse or recycle where possible.

References

Available on request.

Special Considerations

Exposure to the Hazardous Combustion and Decomposition Products as described in MSDS Sections 5 and 10 may be linked with various acute and chronic health effects. These effects include irritation of eyes and upper respiratory tract primarily from the aldehydes, breathing difficulties, systemic toxicity such as liver, kidney, and central nervous system effects.

NOVA Chemicals has monitored worker exposures to emissions during commercial-scale processing of polyethylene. Concentrations of hazardous decomposition products were determined to be well below established exposure limits in the workplace. "Quantitation of Employee Exposure to Emission Products Generated By Commercial-Scale Processing of Polyethylene" is available in the Am. Ind. Hyg. Assoc. J. 56:809-814 (1995).

For information on ventilation considerations for the control of volatile air contaminants from polyethylene, please request a copy of NOVA Chemicals' publication, "Ventilation Guidelines for Heat Processing Polyethylene Resins".

For additional information on unloading hopper cars containing plastic resins, refer to NOVA Chemicals' publication, "Hopper Car Unloading Guide".

For information on processing properties and selection of SURPASS resin grades, refer to the SURPASS Product Data Sheets available on our web site, under PRODUCTS & SERVICES: http://www.novachem.com.

For additional information on preventing pellet loss, refer to published plastic industry publications and resources under 'Operation Clean Sweep'; now downloadable from the web at http://www.opcleansweep.org/.

Polyethylene fines and dust particles are listed as a Class I combustible dust by the National Fire Protection Association (see NFPA-68, Table F.1(e)). For additional information on control of static and minimizing potential dust and fire hazards, refer to NFPA-654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids, 2006 Edition".

For SURPASS resin grade specific information including food contact compliance statements, please contact your sales representative or refer to NOVA Chemicals' polyethylene Product Data Sheets.

Material Safety Data Sheet

Material Name: SURPASS® Polyethylene-Not Colored (All Grades)

MSDS ID: NOVA-0031A

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; BLEVE = Boiling Liquid Expanding Vapor Explosion; BOD = Biochemical Oxygen Demand; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CPR = Controlled Products Regulations; DOT = Department of Transportation; DSL = Domestic Substances List; EINECS = European Inventory of Existing Commercial Substances; EPA = Environmental Protection Agency; EU = European Union; FDA = Food and Drug Administration; IARC = International Agency for Research on Cancer; IDL = Ingredient Disclosure List; Kow = Octanol/water partition coefficient; LEL = Lower Explosive Limit; NIOSH = National Institute for Occupational Safety and Health; NJTSR = New Jersey Trade Secret Registry; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; RCRA = Resource Conservation and Recovery Act; SARA = Superfund Amendments and Reauthorization Act; TDG = Transportation of Dangerous Goods; TSCA = Toxic Substances Control Act.

MSDS Prepared by: NOVA Chemicals
MSDS Information Phone Number: 1-412-490-4063

Other Information

Notice to Reader:

ALTHOUGH THE INFORMATION CONTAINED IN THIS DOCUMENT IS PRESENTED IN GOOD FAITH, BASED ON AVAILABLE INFORMATION BELIEVED TO BE RELIABLE AT THE TIME OF PREPARATION OF THIS DOCUMENT, **NOVA CHEMICALS MAKES NO WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION OR THE PRODUCT/MATERIALS DESCRIBED HEREIN, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES AND CONDITIONS (INCLUDING ALL WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). NO FREEDOM FROM INFRINGEMENT OF ANY PATENT OWNED BY NOVA CHEMICALS OR OTHERS IS TO BE INFERRED. THIS INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE CONTACT NOVA CHEMICALS FOR THE MOST CURRENT VERSION OF THIS MSDS. NOVA CHEMICALS DOES NOT ASSUME RESPONSIBILITY FOR MSDS OBTAINED FROM THIRD PARTY SOURCES.**

UNLESS SPECIFICALLY AGREED OTHERWISE, NOVA CHEMICALS DOES NOT TAKE RESPONSIBILITY FOR USE, TRANSPORTATION, STORAGE, HANDLING OR DISPOSAL OF THE PRODUCTS DESCRIBED HEREIN.

This is the end of MSDS # NOVA-0031A.