



Heckmann Building Products Inc.

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Melrose Park, IL 60160-2911

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MATERIAL SAFETY DATA SHEET
Zinc Alloy #2 Heckmann Pos-I-Tie Barrels

Emergency Number For Spills – Not applicable

For General Information – 800-621-4140

This information is believed to be accurate and represents the information currently available to us. However we **make** no warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

Substance Identification

Material Name: Zinc Alloy #2 Alloy

Hazardous Components

Hazardous Component(s): Contains no hazardous chemical as defined by 29 CFR 1910.1200.

Eqosure Limits: NA

Hazardous Components	OSHA PEL TWA	OSH PEL Ceiling	ACGIH TLV TWA	ACGIH TLV STEL	%
Aluminum oxide					<1
Total dust	10	None	10	None	
Respirable dust	5	None	None	None	
Aluminum					3.9 to 4.3
Total dust	15	None	10	None	
Fume, Dust	5	None	5	None	

Iron					.075
Oxide fume	10	None	5	None	
Oxide total dust	10	None	None	None	
Lithium	None	None	None	None	< trace
Nitrides	None	None	None	None	<trace
Copper					2.6 to 2.9
Fume	0.1	None	0.2	None	
Total dust	1	None	1	None	
Magnesium					<trace
Magnesium oxide					<trace
Fume	10	None	10	None	
Respirable dust	5	None	None	None	
Lead					<.004
Zinc					93-94
Oxide fume	5	None	5	10	
Oxide total dust	15	None	10	None	
Oxide respirable dust	5	None	None	None	
Manganese	5	5	0.2	None	<trace
Carbides	None	None	None	None	<trace
Ammonia	55 ppm	None	25 ppm	35 ppm	<trace
Tin					< .002
Oxide and inorganic	2	None	2	None	
Cadmium					< .003
Chromium	1	None	0.5	None	<trace
Nickel	1	None	1	None	<trace
Cobalt	0.1	None	0.05	None	<trace
Silicon					<trace
Total dust	15	None	10	None	
Respirable dust	5	None	None	None	

Physical/Chemical Characteristics

Boiling Point	Approximately 1660° F	Specific Gravity (H ₂ O = 1)	
Vapor Pressure (mm Hg.)	NA		
Vapor Density (Air = 1)	NA	Evaporation rate	NA
Solubility in Water	Not soluble	Appearance and odor	Metallic – grayish white – no odor

Fire and Explosion Hazard Data

Flash Point - NA

LEL – NA UEL – NA

Extinguishing Media – Use dry chemical or carbon dioxide. Do not use water.

Zinc Dust in flammable in air at a concentration >430 grams/m³.

Unusual fire explosion hazards – Zinc dust in contact with acids or water generates Hydrogen. Molten zinc generates fume and dust that can be toxic causing respiratory problems. Never use water or molten metal or charge wet metallic zinc or explosion will occur.

Reactivity: Stable at room temperature

Avoid water with molten metal.

At temperatures above the melting point, zinc oxide fumes may be evolved.

Reaction with strong oxidizers liberates hydrogen gas which may be explosive.

Health Hazard Data

No health hazard or toxicity information exists for zinc alloys. Data for zinc, aluminum and copper are given instead. Aluminum is not generally regarded as an industrial toxin. In normal use, few health hazards occur.

Cutting, melting, welding, soldering or mechanical processing may produce dusts or fumes containing zinc or zinc oxide. Breathing these dusts or fumes may present potentially significant health hazards.

Precautions for Safe Handling and Use

If zinc is in a molten state, avoid contact with water or moisture.

Avoid breathing dust or fumes.

No hazards in solid state.

Control Measures

Wear full-face respirator if cutting material or if it is in a molten state.

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MATERIAL SAFETY DATA SHEET

PLAIN STEEL, MILL GALVANIZED STEEL, HOTDIP GALVANIZED AFTER FABRICATION, ELECTRO GALV. (Carbon, Alloy Steels) revised June 30, 2000

I. PRODUCT INFORMATION

Company: Heckmann Building Products Inc.,
 1501 N. 31st Avenue
 Melrose Park, IL 60160 708-865-2403

Trade Name: Plain Steel, Mill Galvanized Steel.

Chemical Name: Steel

Form: Masonry Anchors & Ties, Flashings, Rounds, Steel Building Anchors.

II. PRODUCT INGREDIENTS

MATERIAL	CAS NUMBER	% WEIGHT	Exposure Limits	
			OSHA PEL (mg/m ³)	ACGIH
TLV(mg/3m)				
Base Metal Iron (Fe)	7439-89-6	Balance	10 (Fe,o,Fume)	5.0 (Fe,O,Fume)
Alloying Elements				
Carbon (C)	7440-44-0	0.01-1.5	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.01-12	1.0 as chrome	0.5 as chrome
Copper (Cu)	7440-50-8	0.04-0.7	0.2 as copper	0.2 as fume
			1.0 as dust	1.0 as dust
Lead (Pb)	7439-92-1	0.15-0.35	0.05 as fume	0.15 as dust & fume
Manganese (Mn)	7439-96-5	0.05-2.0	5 as manganese	5 as dust 1 as fume
Molybdenum (Mo)	7439-98-7	0.01-1.10	15 as insoluble	10 as insoluble comp.
Nickel (Ni)	7440-02-0	0.01-10	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max	0.1 as Phos	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.15-2.2	None Listed	10 total dust
Sulphur (S)	7704-34-09	0.001-0.35	13 sulfur dioxide	5 sulfur dioxide
Tungsten (W)	7440-33-7	0.0-18	None Listed	5 insoluble compounds
Vanadium (V)	7440-62-2	0.01-1.0	0.5 as dust	0.05 dust and fume
Zinc (Zn) Coating	1314-13-2	10 Max	5.0 as fume	5.0 as fume

Note: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

Plain Steel, Mill & Hotdip Galvanized Steel - MSDS Page 2
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III. PHYSICAL DATA

PHYSICAL FORM: Solid under normal conditions. BOILING POINT: Not applicable.
APPEARANCE & ODOR: Grey-Black with Metallic Luster Odorless. VAPOR PRESSURE: Not applicable.
SPECIFIC GRAVITY (H₂O = 1): 7 VAPOR DENSITY: Not applicable.
MELTING POINT: 2750 degrees F ACIDITY/ALKALINITY: Not applicable.
SOLUBILITY IN WATER % by weight: Not applicable.
% VOLATILE BY VOLUME: Not applicable.

IV. PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: NIOSH approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.
HANDS, ARMS, BODY: Use appropriate protective clothing such as welders aprons & gloves when welding or burning. Check local codes.
EYES & FACE: Safety glasses should always be worn when grinding or cutting: face shields should be worn when welding or burning.
OTHER CLOTHING AND EQUIPMENT: As required. (Makes sense, doesn't it!)

V. EMERGENCY MEDICAL PROCEDURES

INHALATION: Remove to fresh air; if condition continues, consult physician.
EYE CONTACT: Immediately flush well with running water to remove particulate; get medical attention.
SKIN CONTACT: If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.
INGESTION: If significant amounts of metal are ingested, consult physician.

VI. HEALTH & SAFETY INFORMATION

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates may present hazards.

The above operations

should be performed in well ventilated areas. The major exposure hazard is inhalation.

Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose and throat. Also high concentrations of fumes and dusts of iron-oxide, manganese, copper, zinc, and lead may result in the dreaded metal fume fever.

Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Plain Steel, Mill & Hotdip Galvanized Steel - MSDS Page 3
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IRON: Pulmonary effects, siderosis.

MANGANESE: Bronchitis, pneumonitis, lack of coordination.

CHROMIUM: Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possible cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induces human cancer.

NICKEL: Same as Chromium.

COPPER: Pulmonary effects.

VANADIUM: No reported cases of exposure to vanadium.

MOLYBDENUM: Pain in the joints, hands, knees, and feet.

TUNGSTEN: Some evidence of pulmonary involvement such as cough.

LEAD: Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decreased hand-grip strength and adverse reproductive effects.

ZINC: None reported.

VII. FIRE AND EXPLOSION

FLASH POINT: Not Applicable.

AUTO IGNITION TEMPERATURE: Not Applicable.

LIMITS IN AIR: Not Applicable.

FIRE AND EXPLOSION HAZARDS: None

EXTINGUISHING MEDIA NOT TO BE USED: None.

VIII. REACTIVITY

Material is stable under normal conditions.

INCOMPATIBILITY: Reacts with strong acids to form hydrogen gas.

Conditions to avoid: Keep area well ventilated when cutting, welding, burning, or brazing. Avoid generation of airborne dusts and fumes.

HAZARDOUS DECOMPOSITION PRODUCTS: Metallic oxides.

IX. ENVIRONMENTAL

Spill or leak procedures: Not applicable. Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum. Waste Disposal Method: Dust, etc - follow federal, state, and local regulations regarding disposal.

X. DISCLAIMER

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense

arising out of or in any way connected with the handling, storage, use or disposal of the product.

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MATERIAL SAFETY DATA SHEET
STAINLESS STEEL – revised June 30, 2000

I. PRODUCT INFORMATION

Company: Heckmann Building Products Inc.,
 1501 N. 31st Avenue
 Melrose Park, IL 60160
 708-865-2403.

Trade Name: Stainless Steels
 Chemical Name: AISI/SAE Grades 300 Series, 400 Series, Special Alloys.
 Form: Anchors, Ties, Flashing, Steel Connectors.

II. PRODUCT INGREDIENTS

MATERIAL (mg/m ³)	CAS NUMBER	%WEIGHT	Exposure Limits	
			OSHA PEL (mg/m ³)	ACGIH TLV
Base Metal				
Iron (Fe)	7439-89-6	38.0-89.6	10 Oxide Fume	5 Oxide Fume
Aluminum (Al)	7429-90-5	.01-0.5	Not Established	10 Dust/5 Fume
Carbon (C)	7440-44-0	.03-2.0	Not Established	Not Established
Chromium (Cr)	7440-47-3	10-27	1.0 Chrome Metal	0.5 Chrome Fume
Cobalt (Co)	7440-48-4	.01- .75	0.1 Cobalt Metal	0.05 Cobalt Fume
Copper (Cu)	7440-50-8	.18-4.5	0.1/Fume/1.0 Dust	0.2 Fume/1.0 Dust
Manganese (Mn)	7439-96-5	2-10	5c Dust/5c Fume	5c Dust/1 Fume
Molybdenum (Mo)	7439-98-7	.04-5	15 Insoluble Comp.	10 Insoluble Comp.
Nickel (Ni)	7440-02-0	.12-34	1 Nickel Metal	1 Nickel Metal
Phosphorous (P)	7723-14-0	.01-.06	0.1 Phosphorous	0.1 Phosphorous
Selenium (Se)	7782-49-2	.01-0.3	0.2 Se Metal	0.2 Se Metal
Silicon (Si)	7440-21-3	.15-2.0	Not Established	10 Total Dust
Sulfur (S)	7704-34-9	.01-.06	13 Sulfur Dioxide	5 Sulfur Dioxide
Titanium (Ti)	7440-32-6	.01-0.7	15 Ti Eioxide	15 Ti Eioxide
Columbium (Cb)	7440-25-7		Not Established	Not Established
Tantalum (Ta)	7440-03-1	.01-1.1	5.0 Ta Metal	5.0 Ta Metal

Note: The above listing is a summary of elements used in alloying Stainless Steels. Various grades of Stainless Steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. No permissible exposure limits (PEL) or threshold limit values (TLV) exist for Stainless Steels. Values shown are applicable to component elements.

III. PHYSICAL DATA

PHYSICAL FORM: Solid under normal conditions BOILING POINT: Not applicable
APPEARANCE & ODOR: Silvery gray odorless metal VAPOR PRESSURE: Not applicable
SPECIFIC GRAVITY: (H2O=1): Approx. 8 VAPOR DENSITY: Not applicable.
MELTING POINT: Approx. 2400 F - 2800 F ACIDITY/ALKALINITY: Not applicable.
SOLUBILITY IN WATER: % by weight Not Applicable %VOLATILE BY VOLUME: Not applicable.

IV. FIRE AND EXPLOSION DATA

FLASH POINT: Not applicable AUTO IGNITION TEMP: Not applicable.
FLAMMABLE LIMITS IN AIR: Not applicable.
FIRE & EXPLOSION HAZARDS-EXTINGUISHING MEDIA: Stainless steel does not present fire or explosion hazards under normal conditions. Use fire fighting methods and materials that are appropriate for surrounding fire.
Fine metal particles, such as produced in grinding and sawing, can burn. High concentration of metallic fines in the air may present an explosion hazard. Molten metal may explode on contact with water. For these fires, use dry powder or sand extinguishing media.

V. ENVIRONMENTAL HEALTH & SAFETY INFORMATION

HEALTH HAZARDS: Stainless steel products in their solid state present no inhalation, ingestion, or contact health hazard.
Operations such as burning, welding, sawing, brazing, grinding, and machining, which result in elevating the temperature of the product to, or above its melting point, or result in the generation of airborne particulates may present hazards. The major exposure hazard is inhalation. Effects of overexposure to fume and dust are as follows:
ACUTE: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. High concentrations of fumes and dusts of iron-oxide, manganese, copper, and zinc may result in metal fume fever. Typical symptoms last from 12 to 48 hours and consist of a metallic taste in the mouth, dryness and irritation of the throat, chills, and fever.
CHRONIC: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:
ALUMINUM: Irritation of the eyes, nose, and throat.
CHROMIUM: Lesions of the skin and mucous membranes, possible cancer of nose or lungs - bronchogenic carcinoma.
COBALT: Respiratory tract irritation, skin rash.
COPPER: Irritation of eyes, nose and throat, metal fume fever.
IRON: Pulmonary effects, siderosis.
Manganese: Bronchitis, pneumonitis, lack of coordination.

Molybdenum: Respiratory tract irritation, possible liver/kidney damage, bone deformity.

NICKEL: Lesions of the skin and mucous membranes, possibly cancer of nose or lungs, bronchogenic carcinoma.

PHOSPHOROUS: Necrosis of the mandible.

SELENIUM: Nasal and bronchial irritation, gastro-intestinal disturbances, garlic breath odor.

SULFUR: Edema of the lungs.

TITANIUM: No chronic debilitating symptoms indicated.

COLUMBIUM/TANTALUM: No chronic debilitating symptoms indicated.

Occupational Exposure Limits: See products ingredients Section 2. Chromium and Nickel have been identified by the International Agency for Research on Cancer and/or the National Toxicology Program as potential cancer causing agents.

EMERGENCY MEDICAL PROCEDURES: Inhalation: Remove to fresh air; if condition continues, consult a physician.

Eye Contact: Flush thoroughly with running water to remove particulate; obtain medical attention.

Skin Contact: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists.

Ingestion: If significant amounts of metal are ingested, consult physician. If condition is voluntary, psychotherapy is advised.

OCCUPATIONAL PROTECTIVE MEASURES: Respiratory Protection: Appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulates. If exposure limits are reached or exceeded, use NIOSH approved equipment.

Hands, Arms, and Body: Protective gloves should be worn as required for welding, burning, or handling operations.

Eyes & Face: Safety Glasses should be worn when grinding or cutting. Face shields should be worn when welding or burning.

Other clothing and Equipment: As required depending on operations and safety codes.

VI. REACTIVITY DATA

Stability: Stable under normal conditions of use, storage and transportation.

INCOMPATIBILITY (Materials to avoid): Stainless steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume and dust.

VII. SPILL, LEAK & DISPOSAL METHODS

Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for rescue. Used or unused product should be disposed of in accordance with federal, state, or local laws and regulations.

VIII. ADDITIONAL PRECAUTIONS

Minimize and control operations producing airborne dust and fume. Provide adequate local and general exhaust ventilation. Maintain good housekeeping.

IX. DISCLAIMER

This MSDS is intended for use solely in safety education and environmental health training and not for specification purposes.

The information in this MSDS was obtained from usually reliable sources and is provided without and representation or warranty, express or implied regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. Heckmann Building Products Inc. assumes no responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

SAFETY DATA SHEET

North American Version

RADEL R-5100 BK937 & 937 LF

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Identification of the substance or mixture

Product name : RADEL R-5100 BK937 & 937 LF

1.2. Use of the Substance/Mixture

Recommended use : - For further information, please contact: Supplier

1.3. Company/Undertaking Identification

Address : SOLVAY SPECIALTY POLYMERS USA, LLC
4500 MCGINNIS FERRY ROAD
ALPHARETTA GA 30005-3914
United States

1.4. Emergency and contact telephone numbers

Emergency telephone number : 1 (800) 621-4590 [Health Information]
1 (800) 424-9300 CHEMTREC® (USA & Canada)
1 (800) 621-4557 [Other Product Information]
1 (770) 772-8880

2. HAZARDS IDENTIFICATION

2.1. Emergency Overview:

General Information

Appearance : pellets
Colour : black
Odour : odourless

Main effects

- Hazardous decomposition products formed under fire conditions.
- Product dust may be irritating to eyes, skin and respiratory system.

2.2. Potential Health Effects:

Inhalation

- Mechanical irritation from the particulates generated by the product.
- Thermal decomposition can lead to release of hazardous gases and vapors

Eye contact

- Mechanical irritation from the particulates generated by the product.

Skin contact

- Mechanical irritation from the particulates generated by the product.

Ingestion

- Low ingestion hazard.

Other toxicity effects

- See section 11: Toxicological Information

2.3. Environmental Effects:

- See section 12: Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Polyphenylsulfone

CAS-No. : 25608-64-4

Concentration : $\geq 99.0 \%$

Carbon black

CAS-No. : 1333-86-4

Concentration : $\geq 0.0 - < 1.0 \%$

4. FIRST AID MEASURES

4.1. Inhalation

- Remove to fresh air.
- If symptoms persist, call a physician.

4.2. Eye contact

- Flush eyes with running water for several minutes, while keeping the eyelids wide open.
- If eye irritation persists, consult a specialist.

4.3. Skin contact

- Cool skin rapidly with cold water after contact with hot polymer.
- Do not peel polymer from the skin.
- Obtain medical attention.

4.4. Ingestion

- Never give anything by mouth to an unconscious person.
- If a large amount is swallowed, get medical attention.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media

- powder
- Foam
- Water
- Water spray
- Carbon dioxide (CO₂)

5.2. Extinguishing media which shall not be used for safety reasons

- None.

5.3. Special exposure hazards in a fire

- Combustible material
- In a fire, the polymer melts, producing droplets which may propagate fire.
- Once started, a fire will tend to self extinguish (see section 9).
- Risk of dust explosion.
- Heating can release hazardous gases.

5.4. Hazardous decomposition products

- Carbon monoxide
- Sulphur oxides

- Hydrocarbons
- Carbon dioxide (CO₂)
- The release of other hazardous decomposition products is possible.

5.5. Special protective equipment for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.

5.6. Other information

- Avoid dust formation.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Refer to protective measures listed in sections 7 and 8.

6.1.2. Advice for emergency responders

- Sweep up to prevent slipping hazard.
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.

6.2. Environmental precautions

- Should not be released into the environment.
- The product should not be allowed to enter drains, water courses or the soil.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3. Methods and materials for containment and cleaning up

- Sweep up and shovel into suitable containers for disposal.
- Avoid dust formation.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

7.1. Handling

- Take measures to prevent the build up of electrostatic charge.
- Ensure all equipment is electrically grounded before beginning transfer operations.
- Use only equipment and materials which are compatible with the product.
- To avoid thermal decomposition, do not overheat.

7.2. Storage

- Keep container closed.
- Keep away from heat and sources of ignition.

7.3. Other information

- Keep away from open flames, hot surfaces and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.
- Do not smoke.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limit Values

Particles not otherwise specified (PNOS)

- US. ACGIH Threshold Limit Values 2007
time weighted average = 3 mg/m³
Remarks: Respirable particles.
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 5 mg/m³
Remarks: respirable dust fraction, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. ACGIH Threshold Limit Values 2010
time weighted average = 10 mg/m³
Remarks: Inhalable particles.
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 15 mg/m³
Remarks: Total dust, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
time weighted average = 15 millions of particles per cubic foot of air
Remarks: respirable dust fraction
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
time weighted average = 50 millions of particles per cubic foot of air
Remarks: Total dust
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
time weighted average = 5 mg/m³
Remarks: respirable dust fraction
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
time weighted average = 15 mg/m³
Remarks: Total dust
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
time weighted average = 5 mg/m³
Remarks: respirable dust fraction
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
time weighted average = 15 mg/m³
Remarks: Total dust

Carbon black

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 3.5 mg/m³
- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989
time weighted average = 3.5 mg/m³
- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008
time weighted average = 3.5 mg/m³
- US. ACGIH Threshold Limit Values 12 2010
time weighted average = 3 mg/m³

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.
SAEL = Solvay Acceptable Exposure Limit, Time Weighted Average for 8 hour workdays. No Specific TLV STEL (Short Term Exposure Level) has been set. Excursions in exposure level may exceed 3 times the TLV TWA for no more than a total of 30 minutes during a workday and under no circumstances should they exceed 5 times the TLV TWA.

8.2. Engineering controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Provide appropriate exhaust ventilation at places where dust is formed.

- Refer to protective measures listed in sections 7 and 8.

8.3. Personal protective equipment

8.3.1. Respiratory protection

- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.
- Respirator with combination filter for vapour/particulate (EN 141).

8.3.2. Hand protection

- When handling hot material, use heat resistant gloves.

8.3.3. Eye protection

- Safety glasses with side-shields
- Dust proof goggles, if dusty.

8.3.4. Skin and body protection

- Long sleeved clothing

8.3.5. Hygiene measures

- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information

Appearance	:	pellets
Colour	:	black
Odour	:	odourless

9.2. Important health safety and environmental information

pH	:	<i>Remarks: not applicable</i>
Boiling point/boiling range	:	<i>Remarks: not applicable</i>
Flash point	:	<i>Remarks: not applicable</i>
Flammability	:	<u>Upper explosion limit:</u> <i>Remarks: no data available</i> <u>Lower explosion limit:</u> <i>Remarks: no data available</i> <i>Remarks: The product is not flammable.</i>
Explosive properties	:	<u>Explosion danger:</u> <i>Remarks: no data available</i>
Vapour pressure	:	<i>Remarks: not applicable</i>
Relative density / Density	:	1.29 <i>Remarks: no data available</i>
Solubility(ies)	:	Water <i>Remarks: negligible</i>
Partition coefficient: n-octanol/water	:	<i>Remarks: not applicable</i>

Vapour density : *Remarks: not applicable*

9.3. Other data

Decomposition temperature : 220 °C (428 °F)
Remarks: Softening point
: > 430 °C (> 806 °F)
Remarks: Extended period of exposure (ca. 1 hour).

10. STABILITY AND REACTIVITY

10.1. Stability

- Stable under normal conditions.
- Hazardous Polymerisation/Polymerization: no

10.2. Conditions to avoid

- Heat, flames and sparks.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.
- The normal temperature for processing this resin exceeds the decomposition and/or ignition temperature of some other polymeric resins, such as polyacetal, polyvinyl chloride (PVC), polypropylene, etc. If PVC or any other resin with a decomposition temperature below 371°C / 700°F is molded or handled in your equipment, these materials can rapidly decompose and/or react with this resin at the temperatures used to process this resin. Inadvertent contamination of this resin with these materials from the material handling system or other equipment can result in a rapid, possibly violent release of decomposition fumes, when the contaminated material is brought to processing temperature. To avoid, thoroughly clean molding and other processing equipment prior to changeover and prevent cross contamination of material handling systems.
- Keep at temperature not exceeding: > 430 °C (> 806 °F)

10.3. Materials to avoid

- Polymeric resins

10.4. Hazardous decomposition products

- Carbon monoxide, Sulphur oxides, Hydrocarbons, Carbon dioxide (CO₂), The release of other hazardous decomposition products is possible.

11. TOXICOLOGICAL INFORMATION

Toxicological data

Acute oral toxicity

- *Remarks: no data available*

Chronic toxicity

- *Remarks: This product may contain carbon black. Carbon black has been shown to cause lung tumors in rats at high exposure concentrations. These concentrations exceed the capacity of the lung to clear the carbon black particles, thus resulting in significant toxicity. The International Agency for Research on Cancer (IARC) has evaluated carbon black found it to be possibly carcinogenic to humans. (Group 2B).*

Genetic toxicity in vitro

- no data available

Remarks

- The product is biologically inert.

- Because the components are encapsulated in the resin and may not be bioavailable in the body, they may not exert the above mentioned health effects.
- Product dust may be irritating to eyes, skin and respiratory system.
- Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity effects

Acute toxicity

- Remarks: no data available

Chronic toxicity

- Remarks: no data available

12.2. Mobility

- Remarks: no data available

12.3. Persistence and degradability

Abiotic degradation

- Result: no data available

Biodegradation

- Remarks: no data available

12.4. Bioaccumulative potential

- Result: no data available

12.5. Other adverse effects

- no data available

12.6. Remarks

- Contains a(many) hazardous substance(s) for the environment.
- Under massive form, product is biologically inert and non-degradable.
- Ingestion of solids may cause harm to wildlife due to intestinal mechanical blockage or starvation from false feeling of satiation.

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

- Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations.
- Waste characterizations and compliance with applicable laws and regulations are the responsibility of the waste generator.

13.2. Packaging treatment

- Empty containers.
- Dispose of as unused product.
- For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device or industrial landfill.

13.3. RCRA Hazardous Waste

- Listed RCRA Hazardous Waste (40 CFR 302) - No

14. TRANSPORT INFORMATION

- Sea (IMO/IMDG)
- not regulated
- Air (ICAO/IATA)
- not regulated
- U.S. Dept of Transportation
- not regulated
- It is recommended that ERG Guide number 111 be used for all non-regulated material.
- Canadian Transportation of Dangerous Goods
- not regulated

15. REGULATORY INFORMATION

15.1. Inventory Information

Toxic Substance Control Act list (TSCA)	: -	Listed on inventory.
EU list of existing chemical substances (EINECS)	: -	In compliance with inventory.
Australian Inventory of Chemical Substances (AICS)	: -	Listed on inventory.
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	: -	Listed on inventory.
Korean Existing Chemicals List (ECL)	: -	Listed on inventory.
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	: -	Listed on inventory.
Inventory of Existing Chemical Substances (China) (IECS)	: -	Listed on inventory.
Canadian Domestic Substances List (DSL)	: -	Listed on inventory.

15.2. Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

- not regulated.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

- not regulated.

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Components	CAS-No.	Concentration
Carbon black	1333-86-4	>= 0.0 - < 1.0 %

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Components	CAS-No.	Concentration
Carbon black	1333-86-4	>= 0.0 - < 1.0 %

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

This product contains a chemical known in the State of California to cause cancer and/or to cause birth defects or other reproductive harm. :

Components	CAS-No.	Concentration
Carbon black	1333-86-4	>= 0.0 - < 1.0 %

15.3. Classification and labelling

EC Label - According to Regulation (EC) 1272/2008, as amended

No labelling

16. OTHER INFORMATION

Further information

- Update

Material Safety Data Sheets contain country specific regulatory information; therefore, the MSDS's provided are for use only by customers of the company mentioned in section 1 in North America. If you are located in a country other than Canada, Mexico or the United States, please contact the Solvay Group company in your country for MSDS information applicable to your location.

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product).

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