SAFETY DATA SHEETS

PERMAFLEX™

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Permaflex™
MANUFACTURER: Incredible Products LLC. ADDRESS: 10 West Auglaize Street, Wapakoneta, OH 45895
INFORMATION PHONE: 567-297-3700 EMERGENCY PHONE: 800-424-9300 REVISION DATE: Feb 18, 2015

SECTION 2: HAZARDOUS IDENTIFICATION

Classification:
Skin Irritation - Category 3
Eye Irritation - Category 2A
Respiratory Sensitizer (Solid/Liquid) - Category 1
Skin Sensitizer - Category 1
Carcinogenicity - Category 2
Pictograms:

Signal Word:
Danger
Hazardous Statements - Health:
H316 - Causes mild skin irritation
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317 - May cause an allergic skin reaction H351 - Suspected of causing cancer.
Precautionary Statements - General:
P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P103 - Read label before use.
Precautionary Statements - Prevention:
P264 - Wash thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P284 - <In case of inadequate ventilation> wear respiratory protection.
P272 - Contaminated work clothing should not be allowed out of the workplace. P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
Precautionary Statements - Response:
P332 + P313 - If skin irritation occurs: Get medical advice/attention.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice/attention.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P302 + P352 - IF ON SKIN: Wash with plenty of water.
P333 + P313 - If skin irritation or a rash occurs: Get medical advice/attention.
P321 - Specific treatment (see section 4 on this SDS).
P362 + P364 - Take off contaminated clothing. And wash it before reuse.
P308 + P313 - IF exposed or concerned: Get medical advice/attention.
Precautionary Statements - Storage:
P405 - Store locked up.
Precautionary Statements - Disposal:
P501 - Dispose of contents/ container to an approved waste disposal plant.

SECTION 3: COMPOSITION/INFORMATION ON

INGREDIENT	CAS NO.	UNITS
POLYURETHANE PREPOLYMER	0009040-80-6	38% - 71%
TITANIUM DIOXIDE	0013463-67-7	14% - 26%
4-METHYL-1,3-DIOXOLAN-2-ONE	0000108-32-7	6% - 11%
CARBON BLACK	0001333-86-4	0.7% - 1.2%
TOLUENE-2,6-DIISOCYANATE	0000091-08-7	0.3% - 0.6%
2,4-TOLUENE DIISOCYANATE	0000584-84-9	0.2% - 0.3%

SECTION 2 NOTES: *Indicates toxic chemical(s) subject to reporting requirements of section 313 of Title III and of 40 CFR 372.

SECTION 4: FIRST AID MEASURES

Inhalation:

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor. If exposed/feel unwell/concerned: Call a POISON CENTER/doctor.

Skin Contact:

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Gently blot or brush away excess product. Wash with plenty of lukewarm, gently flowing water for a duration of 15-20 minutes. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before re-use or discard.

IF exposed or concerned: Get medical advice/attention.

Eye Contact:

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 15-20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice/attention.

Avoid direct contact. Wear chemical protective gloves, if necessary.

Ingestion:

Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. If vomiting occurs naturally, lie on your side, in the recovery position. Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person.

IF exposed or concerned: Get medical advice/attention.

SECTION 5: FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Dry chemical, foam, carbon dioxide water spray or fog is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Sand or earth may be used for small fires only.

Unsuitable Extinguishing Media:

If water is used, use very large quantities of cold water. The reaction between water and hot isocyanate may be vigorous. Water and foam may cause violent frothing and possibly endanger the life of the fire fighter.

Specific Hazards in Case of Fire:

Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them. Excessive pressure or temperature may cause explosive rupture of containers. Exposure to vapors of heated isocyanates can be extremely dangerous.

Fire-fighting Procedures:

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid.

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions:

Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), googles, and full protective clothing are also required.

Care should always be exercised in dust/mist areas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedure:
Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Clean up immediately. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
Recommended Equipment:
Positive pressure, full-face piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).
Personal Precautions:
Avoid breathing vapors. Avoid contact with skin, eyes or clothing. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.
Environmental Precautions:
Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.
Methods and Materials for Containment and Cleaning up:
Soak up material with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Follow the precautions on the supplier's safety data sheets. All operations should be performed by trained personnel familiar with the hazards of the chemicals used. Treat the spill area with the decontamination solution, using about 10 parts of solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions or RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.
Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements.

SECTION 7: HANDLING AND STORAGE

General:
Wash hands after use.
Do not get in eyes, on skin or on clothing.
Do not breathe vapors or mists.
Use good personal hygiene practices.
Eating, drinking and smoking in work areas is prohibited.
Remove contaminated clothing and protective equipment before entering eating areas.
Eyewash stations and showers should be available in areas where this material is used and stored.
Employee education and training in safe handling of this material is required under OSHA hazard communication standard. Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed to isocyanates.
Ventilation Requirements:
Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.
Air circulation and exhaustion of isocyanate vapors must be maintained until the coatings have fully cured to insure that no potential health hazard remains.
Exposure to vapors of heated isocyanates can be extremely dangerous.
Storage Room Requirements:
Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight, strong oxidizers and any incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty container retain residue and may be dangerous.
Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection:
Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.
Skin Protection:
Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over- boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.
Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.
When airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied air respirator with a full-face piece or an air supplied hood. For emergencies, use a positive pressure self-container breathing apparatus.
Air purifying (cartridge type) respirators are not approved for protection against isocyanates.
Appropriate Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Density: 10.52 lb/gal
Specific Gravity: 1.26
VOC Regulatory: 0.17 lb/gal
Appearance: Pigmented Viscous Liquid
Odor Description: Mild Chemical
Flash Point: 200F
Boiling Point: 325F
Evaporation Rate: Slower than ether
Vapor Density: Heavier than air
Solubility in H20: N/A

SECTION 10: STABILITY AND REACTIVITY

Stability:
Material is stable at standard temperature and pressure.
Conditions to Avoid:
Heat, high temperature, open flame, sparks, and moisture. Contact with incompatible materials in a closed system will cause liberation of carbon dioxide and buildup of pressure.
Hazardous Reactions/Polymerization:
Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.
Incompatible Materials:
This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent. Material can react with strong oxidizing agents.
Hazardous Decomposition Products:
Carbon dioxide, carbon monoxide, nitrogen oxides, trace amounts of hydrogen cyanide and unidentified organic compounds may be formed during combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Skin Corrosion/Irritation:
Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.
Causes mild skin irritation
Serious Eye Damage/Irritation:
Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. Prolonged vapor contact may cause conjunctivitis. Any level of contact should not be left untreated. Causes serious eye irritation
Respiratory/Skin Sensitization:
This product can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations.
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
Carcinogenicity:
Suspected of causing cancer.
Germ Cell Mutagenicity:
No data available
Reproductive Toxicity:
No data available
Specific Target Organ Toxicity - Single Exposure:
No data available
Specific Target Organ Toxicity - Repeated Exposure:
No data available
Aspiration Hazard:
No data available
Acute Toxicity:
Ingestion: Can result in irritating and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.
Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury.
ACUTE: Exposure may cause mucous membrane and respiratory tract irritation, tightness of chest, headache, shortness of breath, and a dry cough. At concentrations exceeding current occupational limits and for sensitized individuals at levels less than or greater than current occupational limits, asthma-like symptoms may occur. These symptoms may include coughing, wheezing, and shortness of breath. A hypersensitive pneumonitis may also occur if the person is sensitized. This syndrome is characterized by fever, nonproductive cough, wheezing, chills, and shortness of breath. Dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects may also result. The effects of acute exposure may be delayed in onset up to 12-24 hours.
CHRONIC: Repeated exposure above current occupational limits may cause an allergic sensitization of the respiratory tract. This is characterized by an asthma-like response upon re-exposure to the chemical. The symptoms may include coughing, wheezing, shortness of breath and chest tightness. Central nervous system (CNS) impairment possibly leading to unconsciousness.

LC50 (guinea pig): 13 ppm (3-hour exposure) (11.3 ppm - equivalent 4-hour exposure) (2,4-TDI) (1)
LC50 (rabbit): 1.5 ppm (3-hour exposure) (1.3 ppm - equivalent 4-hour exposure) (2,4-TDI) (1)
LD50 (oral, rat): 5,800 mg/kg (2,4-TDI) (1)
LD50 (dermal, rabbit): 10,000 mg/kg (TDI, unspecified composition) (1)
0001333-86-4 CARBON BLACK
LC50 (rat): 6750 mg/m3 (4-hour exposure); cited as 27000 mg/m3 (27 mg/L) (1-hour exposure) (3)

Acute Exposure

0000091-08-7 TOLUENE-2,6-DIISOCYANATE
It can irritate and burn the skin and eyes. Breathing can irritate the respiratory tract. Inhalation of the vapor can irritate the lungs causing coughing and/or shortness of breath. Exposures can cause chemical bronchitis, pneumonitis or pulmonary edema. Exposure far above the OEL could cause death.

Chronic Exposure

0000091-08-7 TOLUENE-2,6-DIISOCYANATE
Toluene-2,6,-diisocyanate may cause a skin allergy, and may cause an asthma-like allergy. Repeated or prolonged contact may cause skin sensitization. Future exposure can cause asthma attacks with shortness of breath, wheezing, cough, and/or chest tightness. Repeated high exposure may cause memory and concentration problems
0000584-84-9 2,4-TOLUENE DIISOCYANATE
Animal tests in rats have shown 2,4-toluene diisocyanate to have moderate to extreme acute toxicity from inhalation exposure and low acute toxicity from oral exposure. Chronic: Inhalation exposure to 2,4-toluene diisocyanate in workers has caused significant decreases in lung function, an asthma-like reaction characterized by wheezing, dyspnea, and bronchial constriction.
0001333-86-4 CARBON BLACK
CARCINOGENIC EFFECTS: In 1996, the IARC reevaluated Carbon Black as a Group 2B carcinogen. This evaluation is given to carbon black for which there is inadequate human evidence, but sufficient animal evidence.
Prolonged inhalation of Carbon black can result in lung disease. Symptoms include coughing, shortness of breath, wheezing and reduced pulmonary function.

Potential Health Effects - Miscellaneous

0000091-08-7 TOLUENE-2,6-DIISOCYANATE
Is an IARC, NTP or OSHA Carcinogen. It has been shown to cause liver cancer in animals. There is no evidence that it affects reproduction.
0000584-84-9 2,4-TOLUENE DIISOCYANATE
Is an IARC, NTP or OSHA carcinogen. Exposure can result in itching of the eyes, lacrimation, and irritation of the nose and pharynx. Respiratory problems that include dry cough, chest pain, difficulty in breathing, wheezing dyspnea, and respiratory distress may occur later. Animal studies have reported significantly increased incidences of tumors of the pancreas, liver, and mammary glands from exposure to 2,4-toluene diisocyanate via gavage. Animal studies, via inhalation, did not report an increased incidence of tumors.
0001333-86-4 CARBON BLACK
Is an IARC, NTP or OSHA carcinogen. Has shown carcinogenic activity in laboratory animals at high doses. Significance to man is unknown. The following medical conditions may be aggravated by exposure: asthma, respiratory disease. WARNING: This chemical is known to the State of California to cause cancer.
0013463-67-7 TITANIUM DIOXIDE
Is an IARC, NTP or OSHA carcinogen. In a lifetime inhalation test, lung cancers were found in some rats exposed to 250 mg/m3 respirable titanium dust. Analysis of the titanium dioxide concentrations in the rat's lungs showed that the lung clearance mechanism was overwhelmed and that the results at the massive 250 mg/m3 level are not relevant to the workplace. Results of a DuPont epidemiology study showed that employees who had been exposed to Titanium Dioxide were at no greater risk of developing lung cancer than were employees who had not been exposed to Titanium dioxide. No pulmonary fibrosis was found in any of the employees and no association was observed between Titanium dioxide exposure and chronic respiratory disease or x-ray abnormalities. Based on the results of this study DuPont concludes that titanium dioxide will not cause lung cancer or chronic respiratory disease in humans at concentrations experienced in the workplace.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:
No data available.
Other Adverse Effects:
No data available.
Bio-accumulative Potential
0000584-84-9 2,4-TOLUENE DIISOCYANATE
Not bioaccumulative (Log Pow = 3.74)
0001333-86-4 CARBON BLACK
A relevant bioaccumulation potential of carbon black is not expected based on its insolubility in organic solvents and in water. Furthermore, since the aggregate diameter of carbon black varies between 80 nm and 810 nm, bioaccumulation of particulate carbon black is not likely owing to the large diameter of the solid aggregate particles.
Mobility in Soil
0000584-84-9 2,4-TOLUENE DIISOCYANATE
Toluene diisocyanates released into the environment will tend to partition into water.
Persistence and Degradability
0000584-84-9 2,4-TOLUENE DIISOCYANATE
Not biodegradable.
0001333-86-4 CARBON BLACK
Carbon Black's insolubility in water results in it not being biodegradable in any medium or by biota. It is considered persistent in the natural environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:
Under RCRA, it is the responsibility of the user of the product, to determine the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state, and local laws.
Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT Information:
Not regulated
IMDG Information:
Not regulated.
IATA Information:
Not regulated.

SECTION 15: DISCLAIMER

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:

* There are points of differences between OSHA GHS and UN GHS. In 90% of the categories, they can be used interchangeably, but for the Skin Corrosion/Irritant Category and the Specific Target Organ Toxicity (Single and Repeated Exposure) Categories. In these cases, our system will say UN GHS.

GLOSSARY:

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG- Canadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center (US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL- Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self-Contained Breathing Apparatus; STEL- Short Term Exposure Limit; TCEQ - Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA - Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.