

MarvelCoat Premium M91

Technical Data Sheet



Product Description:

M91 is a 100% solids polyurethane-urea hybrid coating. M91 is an aromatic coating designed to be an elastomeric protective coating for all substrates, providing excellent chemical abrasion resistance. M91 can be sprayed through a dual cartridge spray system or high pressure spray equipment.

Unique Properties:

M91 combines the processing advantages of a poly urea with the economic performance of a polyurethane coating.

- High strength not found in most hybrids
- Meets USDA Criteria - Incidental Food Contact Applications
- Improved low temperature flexibility
- Improved tensile and elongation properties
- Lower sensitivity to moisture during application
- Improved low temperature cure

Basic Uses:

- Truck Bedliner
- Secondary containment coating (provides a chemical resistant membrane over concrete and steel in approved tank farms)
- Gasoline and chemical resistance for Styrofoam flotation
- Abrasion resistance over wood, metal and concrete
- Waterproofing wood and foamed plastics
- Water and chemical detergent resistance for concrete block and poured walls.
- Roofing

Applications:

MarvelCoat Premium is designed to be used in settings where fast cure time is required. Designed for use in high humidity environments, it can be applied directly to fabric, felt, concrete, wood, or steel given the proper substrate preparation. M91 can be built up to any thickness. A minimum of 50 mils in two passes is recommended for exterior applications. Lower film thicknesses are acceptable if a light-stable top-coat is used.

Storage and Handling:

Containers for both A and B components should be kept tightly closed to prevent moisture contamination. Do not reseal if contamination is suspected. Use of a dry nitrogen blanket for partial drums is recommended. Component B may be stored at ambient temperatures. Storage for Component A should be maintained between 77° F (25°C) and 95°F (35°C). For best results, this product should not be allowed to freeze, although it may be re-heated in a well ventilated oven for a period of time to re-liquefy solid particles. To avoid product degradation, product temperature during re-heating should not exceed 140°F (60°C). An additional note of caution is that exposure to temperatures over 400°F (204°C) can create excessive pressure potentially causing containers to rupture. Do not breathe aerosol or vapors and avoid contact with skin and eyes. Exposure to vapors of heated MDI can be dangerous. To heat product properly, use well ventilated convection ovens or other methods that distribute heat evenly. Avoid using drum heaters or other heat sources that may cause excessive local heating.

Typical Physical Properties		
Hardness, ASTM D-2240	Shore A	93-95
Hardness, ASTM D-2240	Shore D	55
Elongation, 25° C, ASTM D-412	%	290
Tensile Strength 25° C, ASTM D-412	PSI	2,500
Tear Strength, ASTM D-624	PLI	320
Theoretical coverage @ 62.5 mils (1.6 mm)	25 ft²/gal	
Theoretical coverage @ 125 mils (3.2 mm)	13 ft²/gal	
Water Absorption, 25 C° 30days	3%	
Application Requirements		
Application Method	high pressure system	
Minimum Temperature	°F	140
Minimum Working Pressure	PSI	2,000
Minimum Mix Time	min	25
Recoat Window	hours	12
Processing Characteristics		
Solids by Weight and Volume	%	100
Mix Ratio by Volume	1:1	
Gel-Free Time	sec	9
Tack-Free Time	sec	10 -12
Typical Properties Component A (ISO)		
Viscosity @ 25° C	mPa·s	800 - 1,000
Specific Gravity @ 25 °C	1.10	
Weight @ 25 °C	lbs/gal	9.17
Appearance @ 25°C:	liquid	
Typical Properties Component B (Resin)		
Viscosity @ 25° C	mPa·s	500 - 700
Specific Gravity @ 25°C:	1.02	
Weight @ 25 °C	lbs/gal	8.5
Appearance @ 25°C:	Viscous liquid	

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Health and Safety Information:

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling any of the products listed above. Before working with these products, it is your responsibility to read and become familiar with the available information on its hazards, proper use and handling. This is extremely important and cannot be overemphasized. Information is available in several forms, e.g. material safety data sheets and product labels. To obtain this information, contact your Marvel Industrial Coatings representative.

Consistent Testing and Maturation:

Our coatings are subjected to continuous physical property testing in an effort to continuously improve based on real data from field application. Please contact your Marvel Industrial Coatings representative for more information concerning upcoming or recent tests. Please note that application method, substrate preparation, and testing equipment and processes do have a large effect on the physical capabilities and strengths of the products.

SURFACE PREPARATION

In general, coating performance and adhesion are directly proportional to surface preparation. Most failures in the performance of surface coatings can be attributed to poor surface preparation. Polyurea coatings rely on the structural strength of the substrate to which they are applied. All surfaces must be free of dust, dirt, oil, grease, rust, corrosion and other contaminants. When coating substrates previously used, it is important to consider the possibility of substrate absorption, which may affect the adhesion of the coating system, regardless of the surface preparation. Marvel recognizes the potential for unique substrates from one project to another. The following information is for general reference, and for project-specific questions, contact Marvel Coatings.

Warranty:

The information herein is believed to be accurate and reliable as of the date of issuance, but is subject to change without prior notice. It is up to the User to contact Marvel Industrial Coatings, LLC. to verify the correctness prior to ordering or specifying this product. Marvel Industrial Coatings, LLC. warrants this product for merchantable quality only, does not warranty against unknown risks that may or may not be present, nor do we assume any responsibility for coverage, performance, or injuries resulting from the use of this product. No other warranty or guarantee of any kind is made by Marvel Industrial Coatings, LLC. expressed or implied, statutory, by operation or law, or otherwise, including marketability and fitness for a particular purpose. Failure to strictly adhere to recommended procedures shall relieve Marvel Industrial Coatings, LLC. of all liability with respect to the product or the use thereof. The buyer assumes all risks whatsoever as to the use of these products and the Buyer's exclusive remedy as to any breach of warranty or negligence claim shall be limited to the purchase price of the materials and agrees that any and all litigation proceedings shall be according to the laws of Texas and shall be filed in the County of Harris, TX. Each person, firm, or corporation engaged in the application installation, disposal or any other use of the any of these products shall carefully determine whether there is a potential hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures as outlined in Local, State and Federal regulations governing the use or disposal of these products or the construction and/or renovation of structures.



Marvel Industrial Coatings
6309 Skyline Dr. Ste B Houston, TX 77057
Tel: 888-419-6305 Fax: 713-983-4644

To Whom It May Concern:

Re: USDA – F.S.I.S.

By: Marvel Industrial Coatings
6309 Skyline Dr. Ste B
Houston, TX 77057
(888) 419-6305

Marvel Coatings certifies that the following is true and correct:

Product: MarvelCoat® M91

Composition: Marvel Coatings will provide the chemical composition of MarvelCoat® M91 if required. A list of compounds is provided on the SDS.

MarvelCoat® M91 is a two-component modified polyurea. After final cure, MarvelCoat® M91 is inert and displays no reactivity characteristics.

Moisture Resistance: At final cure, MarvelCoat® M91 is impervious to water.

Hazardous: The finished outer surface of MarvelCoat® M91 does not contain carcinogens, mutagens, or teratogens, heavy metals or substances classified as toxic; antimicrobials; pesticides or substances with pesticidal characteristics.

Installed Product: MarvelCoat® M91 is suitable for food processing, storage applications and incidental food contact and will not result in adulteration of food products if used and applied as intended.

Marvel Industrial Coatings
The Protective Coatings Company

Premium M91 Black

SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID: 10-11160
Product Name: Premium M91 Black, B-Side
Revision Date: Jul 21, 2016
Version: 1.0
Manufacturer's Name: Marvel Industrial Coatings
Address: 6309 Skyline Dr. Suite B, Houston, TX, US, 77057
Emergency Phone: Chemtrec:800-424-9300
Information Phone Number: (713) 784-2910
Fax: (713) 983-4644
Date Printed: Jul 21, 2016
Supersedes Date: N.A.
Product/Recommended Uses: For Further Information, Refer to the Product Technical Data Sheet.

SECTION 2) HAZARDS IDENTIFICATION

Classification:

Specific Target Organ Toxicity - Single Exposure - Category 1
Specific Target Organ Toxicity - Repeated Exposure - Category 2
Skin Corrosion - Category 1C
Serious Eye Damage - Category 1
Carcinogenicity - Category 2
Acute aquatic toxicity - Category 3
Chronic aquatic toxicity - Category 3
Acute toxicity Dermal Category 5
Acute toxicity Oral Category 4

Pictograms:



Signal Word:

Danger

Hazardous Statements - Health:

H370 - Causes damage to organs.
H373 - May cause damage to organs through prolonged or repeated exposure.
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H351 - Suspected of causing cancer.
H302 - Harmful if swallowed
H313 - May be harmful in contact with skin

Hazardous Statements - Environmental:

H402 - Harmful to aquatic life
H412 - Harmful to aquatic life with long lasting effects

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:

- P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P264 - Wash thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P273 - Avoid release to the environment.

Precautionary Statements - Response:

- P308 + P311 - IF exposed or concerned: Call a POISON CENTER/doctor.
P321 - Specific treatment (see section 4 on this SDS).
P314 - Get Medical advice/attention if you feel unwell.
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P363 - Wash contaminated clothing before reuse.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310 - Immediately call a POISON CENTER or doctor.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 - IF exposed or concerned: Get medical advice/attention.
P301 + P312 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 - Rinse mouth.
P312 - Call a POISON CENTER/doctor if you feel unwell.

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 INGREDIENTS

CAS	Chemical Name	% By Weight
0009046-10-0	POLYOXYPROPYLENEDIAMINE	24% - 43%
0068479-98-1	AROMATIC AMINE	11% - 20%
0001333-86-4	CARBON BLACK	3% - 6%

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld to protect confidentiality.

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.

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.

Specific Hazards in Case of Fire:

Sudden reaction and fire may result when the product is exposed to oxidizing agents.

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), goggles, 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:

Appropriate dust or face mask to eliminate breathing foam dust particulates.

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. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

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.

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.

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.

Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool dry area. Store liquid in containers above ground and surround by dikes to contain spills or leaks.

Ground and bond containers and receiving equipment. Avoid static electricity by grounding.

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, 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.

Appropriate Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name	OSHA TWA (ppm)	OSHA TWA (mg/m3)	OSHA STEL (ppm)	OSHA STEL (mg/m3)	OSHA Tables (Z1, Z2, Z3)	OSHA Carcinogen	OSHA Skin designation	NIOSH TWA (ppm)	NIOSH TWA (mg/m3)	NIOSH STEL (ppm)	NIOSH STEL (mg/m3)	NIOSH Carcinogen
CARBON BLACK		3.5			1				3.5a			1

Chemical Name	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)	ACGIH STEL (ppm)	ACGIH STEL (mg/m3)
CARBON BLACK		3 (I)		

(I) - Inhalable fraction

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	8.53 lb/gal
Specific Gravity	1.02
VOC Regulatory	0.00 lb/gal

VOC Part A & B Combined	N.A.
Appearance	Pigmented liquid
Odor Threshold	N.A.
Odor Description	Mild
pH	N.A.
Water Solubility	N/A
Flammability	N/A
Flash Point Symbol	N.A.
Flash Point	95 °C
Viscosity	N/A
Lower Explosion Level	N.A.
Upper Explosion Level	N.A.
Vapor Pressure	N.A.
Vapor Density	Heavier than air
Freezing Point	N.A.
Melting Point	N.A.
Low Boiling Point	130 °C
High Boiling Point	N.A.
Auto Ignition Temp	N.A.
Decomposition Pt	N.A.
Evaporation Rate	Slower than ether
Coefficient Water/Oil	N.A.

SECTION 10) STABILITY AND REACTIVITY

Stability:

Material is stable at standard temperature and pressure.

Conditions to Avoid:

Heat, high temperature, open flame, and moisture. Avoid contact with incompatible materials.

Hazardous Reactions/Polymerization:

Will not occur.

Incompatible Materials:

This product will react with any material containing isocyanate. Some reactions can be violent.

Hazardous Decomposition Products:

Combustion products: organic vapors and thermal decomposition fragments.

SECTION 11) TOXICOLOGICAL INFORMATION

Skin Corrosion/Irritation:

Product may be absorbed through skin and cause nausea, headache, and general discomfort.

Causes severe skin burns and eye damage

Serious Eye Damage/Irritation:

Vapors can irritate the eyes. Chemical burns may result due to overexposure. Effects of exposure may be delayed.

Causes serious eye damage

Respiratory/Skin Sensitization:

Inhalation : Severe overexposure may induce respiratory sensitization with asthma like symptoms. These symptoms may be immediate or delayed up to several hours after exposure. Chronic exposures may result in permanent decreases in lung function.

Skin sensitization may develop after repeated and/or prolonged contact.

Carcinogenicity:

Suspected of causing cancer.

Germ Cell Mutagenicity:

No data available

Reproductive Toxicity:

No data available

Specific Target Organ Toxicity - Single Exposure:

Causes damage to organs.

Specific Target Organ Toxicity - Repeated Exposure:

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard:

No data available

Acute Toxicity:

If ingested : In humans, irritation or chemical burns of the mouth, pharynx, esophagus and stomach can develop following ingestion, and injury may be severe and cause death.

Repeated and prolonged exposure at low levels may result in adverse skin and eye effects, liver and kidney disorders.

Chronic Exposure

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

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.

SECTION 12) ECOLOGICAL INFORMATION

Toxicity:

Harmful to aquatic life

Harmful to aquatic life with long lasting effects

Mobility in Soil:

No data available.

Other Adverse Effects:

No data available.

Bio-accumulative Potential

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.

Persistence and Degradability

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 at 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) TRANSPORT INFORMATION

U.S. DOT Information:

UN/NA #: 1760
UN Proper Shipping Name: CORROSIVE, LIQUID, N.O.S. (POLYETHERDIAMINE)
Hazard Class: 8
Packing Group: III
Placard: Corrosive

IMDG Information:

UN/NA #: 1760
UN Proper Shipping Name: CORROSIVE, LIQUID, N.O.S. (POLYETHERDIAMINE)
Hazard Class: 8
Packing Group: III
Placard: Corrosive
Marine Pollutant: No data available

IATA Information:

UN/NA #: 1760
UN Proper Shipping Name: CORROSIVE, LIQUID, N.O.S. (POLYETHERDIAMINE)
Hazard Class: 8
Packing Group: III
Placard: Corrosive

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0009046-10-0	POLYOXYPROPYLENEDIAMINE	24% - 43%	TSCA
0068479-98-1	AROMATIC AMINE	11% - 20%	DSL,SARA312,VOC,TSCA
0001333-86-4	CARBON BLACK	3% - 6%	DSL,SARA312,TSCA,CA_Prop65 - California Proposition 65

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; CA Prop65- California Proposition 65; 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.

Version 1.0:

Revision Date: Jul 21, 2016

First Edition.

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.

Premium M91 ISO

SAFETY DATA SHEET

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID: 10-11159
Product Name: Premium M91 ISO, A-Side
Revision Date: Jul 21, 2016
Version: 1.0
Manufacturer's Name: Marvel Industrial Coatings
Address: 6309 Skyline Dr. Suite B, Houston, TX, US, 77057
Emergency Phone: Chemtrec:800-424-9300
Information Phone Number: (713) 784-2910
Fax: (713) 983-4644
Date Printed: Jul 21, 2016
Supersedes Date: N.A.
Product/Recommended Uses: For Further Information, Refer to the Product Technical Data Sheet.

SECTION 2) HAZARDS IDENTIFICATION

Classification:

Specific Target Organ Toxicity -Single Exposure (Respiratory Tract Irritation) - Category 3
Specific Target Organ Toxicity - Repeated Exposure - Category 2
Skin Irritation - Category 2
Eye Irritation - Category 2A
Respiratory Sensitizer (Solid/Liquid) - Category 1
Skin Sensitizer - Category 1
Carcinogenicity - Category 2
Acute toxicity Oral Category 5

Pictograms:



Signal Word:

Danger

Hazardous Statements - Health:

H335 - May cause respiratory irritation
H373 - May cause damage to organs through prolonged or repeated exposure.
H315 - Causes 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.
H303 - May be harmful if swallowed

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:

- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
- P271 - Use only outdoors or in a well-ventilated area.
- P233 - Keep container tightly closed.
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 - Wash thoroughly after handling.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- 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:

- P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P312 - Call a POISON CENTER/doctor if you feel unwell.
- P314 - Get Medical advice/attention if you feel unwell.
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P321 - Specific treatment (see section 4 on this SDS).
- P332 + P313 - If skin irritation occurs: Get medical advice/attention.
- P362 + P364 - Take off contaminated clothing. And wash it before reuse.
- 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.
- P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
- P333 + P313 - If skin irritation or a rash occurs: Get medical advice/attention.
- P308 + P313 - IF exposed or concerned: Get medical advice/attention.

Precautionary Statements - Storage:

- P403 + P405 - Store in a well-ventilated place. Store locked up.
- P405 - Store locked up.

Precautionary Statements - Disposal:

- P501 - Dispose of contents/ container to an approved waste disposal plant.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
0000101-68-8	4,4'-METHYLENEDIPHENYL DIISOCYANATE	38% - 71%
0068092-58-0	POLYURETHANE PREPOLYMER	19% - 36%
0000108-32-7	4-METHYL-1,3-DIOXOLAN-2-ONE	8% - 14%
0026447-40-5	MDI (MONOMER)	1.0% - 1.7%

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld to protect confidentiality.

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.

Eliminate all ignition sources if safe to do so.

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:

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 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.

Ingestion:

Rinse mouth. Do NOT induce vomiting. Give 1 or 2 glasses of milk or water to drink and get medical attention/advice.

IF exposed or concerned: Get medical advice/attention.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Dry chemical, foam, carbon dioxide 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.

Specific Hazards in Case of Fire:

Excessive pressure or temperature may cause explosive rupture of containers.

Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

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), goggles, and full protective clothing are also required.

Care should always be exercised in dust/mist areas.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure:

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Do not touch or walk through spilled material.

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment:

Appropriate dust or face mask to eliminate breathing foam dust particulates.

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:

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.

Treat the spill area with the decontamination solution, using about 10 parts of the 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 of RCRA and require storage and disposal as hazardous waste.

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. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

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.

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.

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.
Keep liquid and vapors away from sparks and flame, store in containers above ground and surrounded by dikes to contain spills or leaks.
Do not cut, drill, grind, weld, or perform similar operations on or near containers.

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, 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 airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied pressure supplied air respiratory with a full face piece or an air supplied hood. For emergencies, use a positive pressure self-contained 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.

Chemical Name	OSHA TWA (ppm)	OSHA TWA (mg/m3)	OSHA STEL (ppm)	OSHA STEL (mg/m3)	OSHA Tables (Z1, Z2, Z3)	OSHA Carcinogen	OSHA Skin designation	NIOSH TWA (ppm)	NIOSH TWA (mg/m3)	NIOSH STEL (ppm)	NIOSH STEL (mg/m3)	NIOSH Carcinogen
4,4'- METHYLENEDIPHEN YL DIISOCYANATE	0.02 ceiling	0.2 ceiling			1			0.005	0.050			

Chemical Name	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)	ACGIH STEL (ppm)	ACGIH STEL (mg/m3)
4,4'- METHYLENEDIPHEN YL DIISOCYANATE	0.005	0.051		

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	9.74 lb/gal
Specific Gravity	1.17
VOC Regulatory	0.00 lb/gal
VOC Part A & B Combined	N.A.
Appearance	Liquid
Odor Threshold	N.A.
Odor Description	Aromatic
pH	N.A.
Water Solubility	Reacts with water
Flammability	N/A
Flash Point Symbol	N.A.
Flash Point	110 °C
Viscosity	N/A
Lower Explosion Level	N.A.
Upper Explosion Level	N.A.
Vapor Pressure	N.A.
Vapor Density	Heavier than air
Freezing Point	N.A.
Melting Point	N.A.
Low Boiling Point	150 °C
High Boiling Point	N.A.
Auto Ignition Temp	N.A.
Decomposition Pt	N.A.
Evaporation Rate	Slower than ether
Coefficient Water/Oil	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 above 204°C, in the presence of moistures, 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 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

Carcinogenicity:

Suspected of causing cancer.

Respiratory/Skin Sensitization:

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

Germ Cell Mutagenicity:

No data available

Reproductive Toxicity:

No data available

Specific Target Organ Toxicity - Single Exposure:

High vapor concentrations may cause central nervous system (CNS) depression as evidenced by giddiness, headache, dizziness, and nausea. Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). As a result of previous repeated overexposures or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV.

May cause respiratory irritation

Specific Target Organ Toxicity - Repeated Exposure:

Chronic overexposure to isocyanate has also been reported to cause lung damage (including decrease in lung function) which may be permanent.

May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard:

No data available

Acute Toxicity:

No data available

SECTION 12) ECOLOGICAL INFORMATION

Toxicity:

No data available

Persistence and Degradability:

No data available.

Bioaccumulative Potential:

No data available.

Mobility in Soil:

No data available.

Other Adverse Effects:

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal:

Under RCRA, it is the responsibility of the user of the product, to determine at 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) TRANSPORT INFORMATION

U.S. DOT Information:

Not regulated

IMDG Information:

Not regulated.

IATA Information:

Not regulated.

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000101-68-8	4,4'-METHYLENEDIPHENYL DIISOCYANATE	38% - 71%	SARA313, DSL, CERCLA, HAPS, SARA312, VHAPS, VOC, TSCA
0068092-58-0	POLYURETHANE PREPOLYMER	19% - 36%	DSL, SARA312, TSCA
0000108-32-7	4-METHYL-1,3-DIOXOLAN-2-ONE	8% - 14%	DSL, SARA312, TSCA
0026447-40-5	MDI (MONOMER)	1.0% - 1.7%	DSL, SARA312, VOC, TSCA

SECTION 16) OTHER INFORMATION

OTHER INFORMATION:

Note: As per GHS, category 1 is the greatest level of hazard within each class.

GLOSSARY:

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; CA Prop65- California Proposition 65; 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.

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