

Safety Data Sheet

MILSPRAY Tough Coat™ Part A

Revision Date: June 24, 2015

Section 1 - Manufacturer Identification

Product Name: Tough Coat™ Part A

Recommend Use: Touch-Up Military Paint

Supplier's Name: MILSPRAY Military Technologies

Address: 845 Towbin Ave
Lakewood, NJ 08701

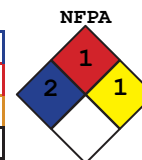
Phone: 732-886-2223

EMERGENCY PHONE: 1-800-424-9300 (Chemtrec)

MILSPRAY

Military Technologies

HMIS	
Health	2
Flammability	1
Physical Hazard	1
Personal Protection	



Section 2 - Hazards Identification

GHS Ratings: Not available.

GHS Signal Word: Warning



GHS Hazards:

Harmful by inhalation.

Irritating to eyes and respiratory system.

May cause sensitization by inhalation and skin contact.

This product is a respiratory irritant and potential respiratory sensitizer.

Repeated inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization.

A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitized persons.

The onset of the respiratory symptoms may be delayed for several hours after exposure.

GHS Precautions

Avoid breathing mist, spray. Use only outdoors or in a well-ventilated area.

If inhaled: Remove person to fresh air and keep comfortable for breathing.

Call a doctor if you feel unwell. Wash thoroughly after handling.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

In case of inadequate ventilation wear respiratory protection. If experiencing respiratory symptoms: Call a doctor.

Dispose of contents/container in accordance with local/regional/national/international regulations.

Contaminated work clothing must not be allowed out of the workplace. Wash contaminated clothing before reuse. Wear protective gloves. If on skin: Wash with plenty of water.

If skin irritation or rash occurs: Get medical attention.

Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

Section 3 - Composition/Information on Ingredients

Component	CAS Number	% by weight
Isocyanates, reaction product of polyol with methylenediphenyl diisocyanate	157905-72-1	30-60
Methylenediphenyl diisocyanate (mixed isomers)	26447-40-5	30-60
Propylene carbonate	108-32-7	5-15

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Section 4 - First Aid Measures

EYE CONTACT: In case of contact, immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Remove any contact lenses that might be worn by the victim. Obtain medical attention immediately.

SKIN CONTACT: After contact with skin, remove contaminated clothing; wash affected areas thoroughly with warm soapy water. If irritation, redness, or a burning sensation develops and persists, obtain medical attention immediately. Contaminated clothing and shoes should be properly laundered before reusing. An MDI study has demonstrated that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is labored, oxygen should be given by administered by qualified personnel.

INGESTION: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Provided the patient is conscious, wash out mouth with water. Get medical attention if symptoms appear.

NOTE TO PHYSICIAN: Symptomatic and supportive therapy as needed. Following severe exposure, medical follow-up should be monitored for at least 48 hours.

PROTECTION OF FIRST-AIDERS: Not available.

Section 5 - Fire Fighting Measures

FLASH POINT: Closed cup: >230°F (110°C) (Setaflash).

SUITABLE EXTINGUISHING MEDIA: Use an extinguishing agent suitable for the surrounding fire.

UNSUITABLE EXTINGUISHING MEDIA: None known.

UNUSUAL FIRE & EXPLOSION HAZARDS: Due to reaction with water producing CO₂-gas, a hazardous build-up pressure could result if contaminated containers are resealed. Containers may burst if overheated.

PRODUCTS OF COMBUSTION: Combustion products may include: carbon oxides (CO, CO₂), nitrous oxides (NO, NO₂...), hydrocarbons and HCN.

PROTECTION OF FIREFIGHTERS AND FIRE FIGHTING EQUIPMENT: Fire-fighters should wear appropriate protective equipment and lf-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. PVC boots, gloves, safety helmet and protective clothing should be worn.

Section 6 - Accidental Release Measures

PERSONAL PRECAUTIONS: Immediately contact emergency personnel. Evacuate the area. Keep upwind to avoid inhalation of vapors. Clean-up should only be performed by trained personnel. People dealing with major spillages should wear full protective clothing including respiratory protection. Use suitable protective equipment (See SECTION 8-Exposure Controls for details).

ENVIRONMENTAL PRECAUTIONS: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

METHODS OF DECONTAMINATION: Prepare a decontamination solution of 0.2-0.5% 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 material safety data sheets when preparing and using solution. Allow deactivated material to stand for at least 30 minutes before shoveling into drums. Do not tighten the bungs. Mixing with wet earth is also effective, but slower.

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METHODS FOR CLEAN-UP: Contain and absorb large spillages onto an inert, non-flammable adsorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spillage area clean with liquid decontaminant. Test atmosphere for MDI. Neutralize small spillages with decontaminant. Remove and properly dispose of residues. (See SECTION 13 for disposal considerations.) Notify applicable government authorities if release is reportable. The CERCLA RQ for 4,4-MDI is 5,000 lbs (see CERCLA in SECTION 15-Regulatory Information).

OTHER INFORMATION: Not available.

Section 7 - Handling and Storage

HANDLING: Before opening this package, read and follow warning labels on all components. Avoid personal contact with the product or reaction mixture. Use only with adequate ventilation to ensure that the occupational exposure limit is not exceeded. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. Avoid breathing aerosols, mists and vapors. (See SECTION 8-Exposure Control/Personal Protection for details.) Keep stocks of decontaminate readily available.

STORAGE: Keep containers properly sealed and when stored indoors, in a dry and well-ventilated area. Keep contents away from moisture. Due to reaction with water, producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are resealed. DO NOT reseal contaminated containers. Uncontaminated containers, free of moisture, may be resealed only after placing under a nitrogen blanket. DO NOT store in containers made of copper, copper alloys or galvanized surfaces.

OTHER INFORMATION: Ideal storage temperature is 60-100°F (16-38°C). Handling and storage should be in accordance with Local, State/Provincial or Federal regulations. Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Keep out of the reach of children. Keep stocks of decontaminate readily available. (See SECTION 6-Accidental Release Measures for details).

Section 8 - Exposure Controls/Personal Protection

EXPOSURE LIMITS:

Product Name	OSHA PEL	ACGIH TLV	NIOSH REL
Methylenediphenyl diisocyanate (mixed isomers)	CEIL: 0.2 mg/m ³ CEIL: 0.02 ppm	TWA: 0.051 mg/m ³ 8 hour/hours TWA: 0.005 ppm 8 hour/hours	CEIL: 0.2 mg/m ³ 10 minute/minutes CEIL: 0.02 ppm 10 minute/minutes CEIL: 0.05 mg/m ³ 10 hour/hours CEIL: 0.005 ppm 10 hour/hours

PREVENTATIVE MEASURES: Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace. Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with respiratory problems including asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or skin allergies should be evaluated for their suitability of working with this product. Once a person is diagnosed as sensitized, no further exposure to the material that caused the sensitization should be permitted.

ENGINEERING CONTROLS: Use local exhaust ventilation to maintain airborne concentrations below the TVL. Suitable respiratory equipment should be used in

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cases of insufficient ventilation or where operational procedures demand it. For general guidance on engineering control measures refer to the ACGIH current edition of 'Industrial Ventilation, a manual of Recommended Practice.' Eyewash fountain and safety shower should be accessible; impervious protective clothing.

ENVIRONMENTAL EXPOSURE CONTROLS: Dispose of raw and spent materials and wastes in compliance with all local, state, and federal regulations to prevent potential environmental contamination. Industrial air monitoring may be required to determine any potential environmental hazards to the atmosphere. This monitoring may result in the use of engineering and administrative controls such as filtering and scrubbing systems to mitigate or eliminate potential contaminants.

EYE PROTECTION: Chemical safety goggles. If there is a potential for splashing, use a full-faced shield.

SKIN PROTECTION: The following protective materials are recommended: Gloves—neoprene, nitrile rubber, and butyl rubber. Thin latex disposable gloves should be avoided for repeated or long-term use. Use barrier cream on exposed skin. Protective clothing should be selected and used in accordance 'Guidelines for the Selection of Chemical Protective clothing published by ACGIH.

HNAD PROTECTION: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

RECOMMENDED VENTILATION: Not available.

RESPIRATORY PROTECTION: When the product is sprayed or heated without adequate ventilation, an approved MSHA/NIOSH positive-pressure, supplied-air respirator may be required. Air purifying respirators equipped with organic vapor cartridges and a HEPA (P100) particulate filter may be used under certain conditions when a cartridge change-out schedule has been developed in accordance with the OSHA respiratory protection standard (29 C.F.R. 1910.134).

CONTAMINATED EQUIPMENT: Not available.

HYGIENE: Follow the usual precautionary measures for handling chemicals. Keep away from food and beverages. Immediately remove all soiled and contaminated clothing. Avoid contact with eyes, skin and clothing. Wash hands after use. Wash all contaminated clothing and shoes before reuse.

Section 9 - Physical and Chemical Properties

APPEARANCE: Clear yellow liquid.

ODOR: Slightly musty

ODOR THRESHOLD: Not available.

PHYSICAL STATE: Liquid

% Volume Volatile: Not available.

Formula Lb/Gal: Not available.

Boiling Point: >300°C (>572°F) Decomposes.

pH: Not available.

MELTING POINT/FREEZING POINT: Not available.

FLASH POINT: Closed cup: >110°C (230°F) (Setaflash).

FLAMMABILITY: Not explosive.

UPPER/LOWER LIMITS FLAMMABILITY: Not available.

VAPOR PRESSURE: 0.000004 mmHg

EVAPORATION RATE: Not available.

DENSITY: Not available.

RELATIVE DENSITY: Not available.

SPECIFIC GRAVITY: Not available.

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SOLUBILITY: Not available.
PARTITION COEFFICIENT: Not available.
AUTO-IGNITION TEMPERATURE: >316°C (>600°F)
DECOMPOSITION TEMPERATURE: Not available
VISCOSITY: Not available.
VAPOR DENSITY: 8.5
Lbs VOC/Gallon Less Water: Not available.
Gms VOC/Liter Less Water: 0 grams/liter
%Solid. (w/w): Not available.

Section 10 - Stability and Reactivity

STABILITY & REACTIVITY: Stable at room temperature. Reaction with water (moisture) produces CO₂-gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.

CONDITIONS TO AVOID: Avoid high temperatures.

INCOMPATIBLE MATERIALS: Water, Alcohols, Amines, Bases, and Acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide, Nitrous Oxide and HCN.

POSSIBILITY OF HAZARDOUS REACTIONS: Not available.

HAZARDOUS POLYMERIZATION: Polymerization may occur at elevated temperatures in the presence of alkalis, tertiary amines and metal compounds.

Section 11 - Toxicological Information

LIKELY ROUTES OF EXPOSURE: Eye contact, Skin contact, Ingestion, and Inhalation

EYE: Irritating to eyes.

INHALATION: This product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapor or aerosol at levels about the occupational exposure limit could cause respiratory sensitization. Symptoms may include irritation to the eyes, nose, throat, and lungs, possibly combines with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons.

SKIN: Irritating to skin. May cause sensitization by skin contact animal studies have shown that respiratory sensitization can be induced by skin contact with known respiratory sensitizers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

Ingestion: Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Existing respiratory/pulmonary conditions may be aggravated by overexposure.

TARGET ORGANS: Pancreas, liver, thyroid, and eyes.

CANCER INFORMATION: No known significant effects or critical hazards.

Carcinogenicity: Rats have been exposed for two years to a respirable aerosol of

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polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m³), there was a significant incidence of a benign tumor of the lung (adenoma) and one malignant tumor (adenocarcinoma). There were no lung tumors at 1 mg/m³ and no effects at 0.2 mg/m³. Overall, the tumor incidence, both benign and malignant, and the number of animals with the tumors were not different from controls. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur.

DEVELOPMENTAL INFORMATION: There is no substantial evidence of mutagenic potential. No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations, which are well in excess of defined occupational exposure limits.

MIXTURE TOXICITY: Not available.

ACUTE TOXICITY:

Component	LD50 Oral	LD50 Dermal	LD50 Inhalation
Methylenediphenyl diisocyanate (mixed isomers)	>5000 mg/kg (rat)	>5000 mg/kg (rabbit)	0.49 mg/l (rat) (4 hour/hours) 490 mg/m ³ (rat) (4 hour/hours) 2240 mg/m ³ (rat) (1 hour/hours)
Propylene carbonate	>5000 mg/kg (rat)	>2000 mg/kg (rabbit)	

Section 12 - Ecological Information

ENVIRONMENTAL EFFECTS:

Toxicity:

Product Name	Result	Species	Exposure
Methylenediphenyl diisocyanate (mixed isomers)	>1000 mg/l >1000 mg/l	Zebra Fish (LC50) Daphnia Magna (EC50)	96 hours 48 hours

Bioaccumulative Potential:

Product Name	LogPow	Potential
Propylene Carbonate	-0.41	Low

MOBILITY: By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino-diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.

OTHER ADVERSE EFFECTS: By comparison with an analogous product, the following values are anticipated. The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Even so, the observed ecotoxicity is low/very low. A pond study showed gross contamination caused no significant toxic effects on a wide variety of flora in all trophic levels (including fish), no detectable diamino-diphenylmethane (MDA), and no evidence of bioaccumulation of MDI or MDA.

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Section 13 - Disposal Considerations

The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Empty containers should be decontaminated and either passed to an approved drum recycler or destroyed.

Section 14 - Transport Information

	DOT	IATA	IMDG	TDG
UN Number	Not regulated	Not regulated	Not regulated	Not regulated
UN proper shipping name	Not regulated	Not regulated	Not regulated	Not regulated
Transport hazard class(es)	Not regulated	Not regulated	Not regulated	Not regulated
Packing group	Not regulated	Not regulated	Not regulated	Not regulated

Section 15 - Regulatory Information

U.S. Federal Regulations

This material is classified as hazardous under OSHA Hazard Communication Standard (29 CFR 1910.1200)

HCS Classification: Toxic material, Irritant material, Sensitizer material

U.S. Federal regulations: United States Inventory (TSCA 8b): All components are listed or exempted. This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313: Immediate (acute) health hazard Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs):

Product Name	CAS #	Concentration
Methylenediphenyl diisocyanate (mixed isomers)	101-68-8	22%

STATE REGULATIONS:

California Prop 65: This product contains no listed substances known to the State of California to cause cancer, birth defects, or other reproductive harm, at levels which would require a warning under the statute.

Canada:

WHMIS (Canada): WHMIS Class D-1A: Material causing immediate and serious toxic effects. WHMIS Class D-2A: Material causing other toxic effects (very toxic). WHMIS Class D-2B: Material causing other toxic effects (toxic).

CEPA DSL: All components are listed.

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Section 16 - Other Information

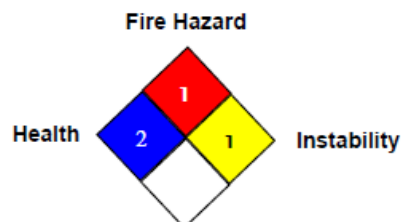
HMIS: Health = 2 Flammability = 1 Physical Hazard = 1 Personal Protection = N/A

NFPA 704: Health = 2 Flammability = 1 Instability = 1

HAZARDOUS MATERIAL INFORMATION SYSTEM (U.S.A.)

Health	2
Fire Hazard	1
Reactivity	1

NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A.)



DISCLAIMER:

This SDS is based on information believed to be reliable and accurate. Because of changing reporting requirements and other variables it is impossible to guarantee the accuracy of the information contained in this document. It is the responsibility of the user to determine proper personal protection based on the actual condition of use and to comply with all Federal, State and Local laws and regulations.

Revision History

6/24/2015 - Original SDS version; approval JH