Metal Guard (Part A)

Safety Data Sheet

According to U.S.A. Federal Hazcom 2012

1. Identification

1.1. Product identifier

Code: **Armus_GA_070721-001**

Product name **Metal Guard (Part A)**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Anti-corrosion metal coating.**

1.3. Details of the supplier of the safety data sheet

Name **Armus LLC**

Full address **137 Grand Street 3rd floor NY**

District and Country **NY 10013**
United States
Tel. (+1) 9179575383

e-mail address of the competent person responsible for the Safety Data Sheet **bill@armussolutions.com**

1.4. Emergency telephone number

For urgent inquiries refer to **Tel. (+1) 9179575383 United States**

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement

Metal Guard (Part A)

Hazard pictograms:

Flammable liquid, category 3	Flammable liquid and vapor.
Acute toxicity, category 4	Harmful if swallowed.
Acute toxicity, category 4	Harmful if inhaled.
Eye irritation, category 2	Causes serious eye irritation.
Skin irritation, category 2	Causes skin irritation.
Skin sensitization, category 1	May cause an allergic skin reaction.
Specific target organ toxicity – repeated exposure, category 2	May cause damage to organs through prolonged or repeated exposure.

Signal words: **WARNING**

Hazard statements:

H226	Flammable liquid and vapor.
H302+H332	Harmful if swallowed or if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

Precautionary statements:

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P260	Do not breathe fume, mist, or spray.
P242	Use only non-sparking tools.
P233	Keep container tightly closed.
P280	Wear protective gloves / eye protection / face protection.
P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P264	Wash with plenty of water and soap thoroughly after handling.
P240	Ground / bond container and receiving equipment.
P243	Take precautionary measures against static discharge.
P241	Use explosion-proof electrical / ventilating / lighting / . . . / equipment.
P272	Contaminated work clothing should not be allowed out of the workplace.

Response:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.

P312	Call a POISON CONTROL CENTER / seek medical attention if you feel unwell.
P314	Get medical advice / attention if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice / attention.
P337+P313	If eye irritation persists: Get medical advice / attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water / . . .
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: use dry powder or Carbon Dioxide (CO2) fire extinguisher to extinguish.
P363	Wash contaminated clothing before reuse.

Storage:

P403+P235	Store in a well-ventilated place. Keep cool.

Disposal:

P501	Dispose of contents or container according to local/national/international regulations.

The mixture contains 15.80%;37.42% of components of unknown acute oral / inhalation toxicity.

2.2 Other hazards

Environmental classification as for Reg. (EU) 1272/2008 (CLP):
The product is classified as hazardous for environment pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).

Classification and Hazard Statement

Hazardous to the aquatic environment, acute toxicity, category 1	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	Very toxic to aquatic life with long lasting effects.

Hazard pictograms:

Signal words: **Warning**

Hazard statements:

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements:
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Prevention:

P273	Avoid release to the environment.

Response:

P391	Collect spillage.

Storage:
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Disposal:

P501 Dispose of contents or container according to local/national/international regulations

Additional hazards
Information not available.

3. Composition / information on ingredients

3.1. Mixtures

Contains:

Identification	Conc. %	Classification:
MAGNETITE CAS 1309-38-0 EC 215-169-8 INDEX --	18.8	Acute toxicity, category 4 H302, Specific target organ toxicity - repeated exposure, category 2 H373, Eye irritation, category 2 H319, Skin irritation, category 2 H315, Specific target organ toxicity - single exposure, category 3 H335
4,4' Isopropylidenedicyclohexanol, oligometric reaction products with 1-chloro-2,3-epoxypropane CAS 30583-72-3 EC 500-070-7 INDEX ---	12.028	Skin sensitization, category 1B H317
ZINC OXIDE CAS 1314-13-2 EC 215-222-5 INDEX 030-013-00-7	3.77	Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=1, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=1
XYLENE (MIXTURE OF ISOMERS) CAS 1330-20-7 EC 215-535-7 INDEX 601-022-009	2.82	Flammable liquid, category 3 H226, Acute toxicity, category 4 H312, Acute toxicity, category 4 H332, Skin irritation, category 2 H315
4,5-Dichlor-2-octyl-3(2H)-isothiazol-3-one CAS 64359-81-5 EC 264-843-8 INDEX --	2.82	Acute toxicity, category 2 H330, Acute toxicity, category 4 H302, Skin corrosion, category 1 H314, Serious eye damage, category 1 H318, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, acute toxicity, category 1 H400 M=100, Hazardous to the aquatic environment, chronic toxicity, category 1 H410 M=100
Epoxy resin (number average molecular weight <=700) CAS 25068-38-6 EC 500-033-5 INDEX 603-074-00-8	2.82	Eye irritation, category 2 H319, Skin irritation, category 2 H315, Skin sensitization, category 1 H317, Hazardous to the aquatic environment, chronic toxicity, category 2 H411

METHANOL CAS 67-56-1 EC 200-659-6 INDEX 603-001-00-X	0.601	Flammable liquid, category 2 H225, Acute toxicity, category 3 H301, Acute toxicity, category 3 H311, Acute toxicity, category 3 H331, Specific target organ toxicity - single exposure, category 1 H370

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.
INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorized by a doctor.
INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

4.3. Indication of any immediate medical attention and special treatment needed

Information not available

5. Fire-fighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder, and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Keep away from heat, sparks, and open flames; do not smoke or use matches or lighters. Without adequate ventilation, vapors may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. When performing transfer operations involving large containers, connect to an earthing system and wear antistatic footwear. Vigorous stirring and flow through the tubes and equipment may cause the formation and accumulation of electrostatic charges. To avoid the risk of fires and explosions, never use compressed air when handling. Open containers with caution as they may be pressurized. Do not eat, drink, or smoke during use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well-ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

8. Exposure controls / personal protection

8.1. Control parameters

Regulatory References:

USA	NIOSH-REL	NIOSH publication NO. 2005-149, 3rd printing, 2007.
USA	OSHA-PEL	Occupational Exposure Limits – Limits for Air Contaminants TABLE Z-1-1910-1000
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2020

ZINC OXIDE

Threshold Limit Value Type	Country	TWA / 8h mg/m3	ppm	STEL/15min mg/m3	Ppm	Remarks / Observations
TLV-ACGIH	-	2		10		
OSHA	USA	5				
OSHA	USA	15				INHAL
OSHA	USA	5				RESP
CAL/OSHA	USA	5		10		
NIOSH	USA	5		15 (C)		

XYLENE (MIXTURE OF ISOMERS)

Threshold Limit Value Type	Country	TWA / 8h mg/m3	ppm	STEL/15min mg/m3	Ppm	Remarks / Observations
OEL	EU	221	50	442	100	SKIN
TLV-ACGIH	-	434	100	651	150	
OSHA	USA	435	100			
CAL/OSHA	USA	435	100			

METHANOL						
Threshold Limit Value						
Type	Country	TWA / 8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	Ppm	
OEL	EU	260	200			
TLV-ACGIH	-	262	200	328	250	SKIN
OSHA	USA	260	200			
CAL/OSHA	USA	260	200	325 (C)	1000 (C)	SKIN
NOISH	USA	260	200	325	250	SKIN

Legend:
(C) = CLEANING ; INHAL = Inhalation Fraction ; RESP = Respiratory Fraction ; THORA = Thoracic Fraction

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves (OSHA 29 CFR 1910.138).
The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose limit of use will be defined by the manufacturer (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapors of various kinds and/or gases or vapors containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odorless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with wastewater or by dumping in waterways.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Color	Not available
Odor	Not available
Odor threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point	Not available
Boiling range	Not available
Flash point	23 < T < 60 °C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility	Not available
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidizing properties	Not available

9.2. Other information

Information not available.

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability
The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions
The vapors may also form explosive mixtures with the air.

XYLENE (MIXTURE OF ISOMERS)
Stable in normal conditions of use and storage.
Reacts violently with: strong oxidants, strong acids, nitric acid, perchlorates.
May form explosive mixtures with: air.

10.4. Conditions to avoid
Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

10.5. Incompatible materials
Information not available

10.6. Hazardous decomposition products
In the event of thermal decomposition or fire, gases and vapors that are potentially dangerous to health may be released.

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects
Metabolism, toxicokinetics, mechanism of action and other information
Information not available

Information on likely routes of exposure
XYLENE (MIXTURE OF ISOMERS)
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; inhalation of ambient air.

METHANOL
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

N-BUTYL ACETATE
WORKERS: inhalation; contact with the skin.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

XYLENE (MIXTURE OF ISOMERS)

Toxic effect on the central nervous system (encephalopathy); irritating for the skin, conjunctiva, cornea and respiratory apparatus.

METHANOL

The minimum lethal dose for humans by ingestion is considered to be in the range from 300 to 1000 mg/kg. Ingestion of 4-10 ml of the substance may cause permanent blindness in adult humans (IPCS).

N-BUTYL ACETATE

In humans, the substance's vapors cause irritation of the eyes and nose. In the event of repeated exposure, skin irritation, dermatitis (dryness and cracking of the skin) and keratitis appear.

Interactive effects

XYLENE (MIXTURE OF ISOMERS)

Intake of alcohol interferes with the metabolism of the substance, inhibiting it. Ethanol consumption (0.8 g/kg) before a 4-hour exposure to xylene vapors (145 and 280 ppm) causes a 50% reduction in the excretion of methyl hippuric acid, whereas the concentration of xylenes in the blood increases approx. 1.5-2 times. At the same time there is an increase in the secondary side effects of the ethanol. The metabolism of the xylenes is increased by phenobarbital and 3-methyl-colantrene type enzyme inducers. Aspirin and xylenes mutually inhibit their conjugation with the glycine, which results in a decrease in urinary excretion of methyl hippuric acid. Other industrial products can interfere with the metabolism of xylenes.

N-BUTYL ACETATE

A case of acute intoxication been reported involving a 33-year-old worker while cleaning a tank with a preparation containing xylenes, butyl acetate and ethylene glycol acetate. The person had irritation of the conjunctiva and upper respiratory tract, drowsiness, and motor coordination disorders, which disappeared within 5 hours. The symptoms are attributed to poisoning by mixed xylenes and butyl acetate, with a possible synergistic effect responsible for the neurological effects. Cases of vacuolar keratitis are reported in workers exposed to a mixture of butyl acetate and isobutanol vapors, but with uncertainty concerning the responsibility of a particular solvent (INRC, 2011).

ACUTE TOXICITY

Epoxy resin (number average molecular weight <=700)
LD50 (Oral) 11500 mg/kg Rat
LD50 (Dermal) > 2000 mg/kg Rabit

XYLENE (MIXTURE OF ISOMERS)
LD50 (Oral) 3523 mg/kg Rat
LD50 (Dermal) 4350 mg/kg Rabbit
LC50 (Inhalation) 26 mg/l/4h Rat

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

RESPIRATORY OR SKIN SENSITISATION
Sensitizing for the skin.

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

CARCINOGENICITY
Does not meet the classification criteria for this hazard class
Carcinogenicity Assessment:
1330-20-7XYLENE (MIXTURE OF ISOMERS)
ACGIH: A4
IARC:3

XYLENE (MIXTURE OF ISOMERS)
Classified in Group 3 (not classifiable as a human carcinogen) by the International Agency for Research on Cancer (IARC).
The US Environmental Protection Agency (EPA) affirms that "the data is inadequate for an assessment of the carcinogenic potential".

REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE
Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE
May cause damage to organs.

ASPIRATION HAZARD
Does not meet the classification criteria for this hazard class

12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it has negative effects on aquatic environment.

12.1. Toxicity

Epoxy resin (number average molecular weight <=700)

LC50 - for Fish	1.3 mg/l/96h
EC50 - for Crustacea	2.1 mg/l/48h
Chronic NOEC for Crustacea	0.3 mg/l 21 d

ZINC OXIDE

LC50 - for Fish	1.1 mg/l/96h Oncorhynchus mykiss
EC50 - for Crustacea	1.7 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	0.14 mg/l/72h Pseudokirchnerella subcapitata
Chronic NOEC for Fish	0.53 mg/l
Chronic NOEC for Algae / Aquatic Plants	0.024 mg/l

12.2. Persistence and degradability

XYLENE (MIXTURE OF ISOMERS)

Solubility in water	100 - 1000 mg/l
Degradability:	Information not available

METHANOL

Solubility in water	1000 - 10000 mg/l
Degradability:	Rapidly degradable

ZINC OXIDE

Solubility in water	2.9 mg/l
Degradability:	NOT rapidly degradable

12.3. Bioaccumulative potential

XYLENE (MIXTURE OF ISOMERS)

Partition coefficient: n-octanol/water	3.12
BCF	25.9

METHANOL

Partition coefficient: n-octanol/water	-0.77
BCF	0.2

ZINC OXIDE

BCF	> 175

12.4. Mobility in soil

XYLENE (MIXTURE OF ISOMERS)

Partition coefficient: soil/water	2.73

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0.1%.

12.6. Other adverse effects

Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.
Disposal must be performed through an authorized waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 1263

14.2. UN proper shipping name

ADR / RID:	PAINT or PAINT RELATED MATERIAL
IMDG:	PAINT or PAINT RELATED MATERIAL
IATA:	PAINT or PAINT RELATED MATERIAL

14.3. Transport hazard class(es)

ADR / RID: Class: 3 Label: 3

IMDG: Class: 3 Label: 3

IATA: Class: 3 Label: 3

14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID:	NO
IMDG:	NO
IATA:	NO

14.6. Special precautions for user

ADR / RID:	HIN – Kemler: 30 Special Provision: -	Limited Quantities: 5L	Tunnel restriction code: (D/E)
IMDG:	EMS: F-E, S-E	Limited Quantities: 5L	
IATA:	Cargo: Pass.: Special Instructions:	Maximum quantity: 220L Maximum quantity: 5L	Packaging instructions: 366 Packaging instructions: 355 A3, A72, A192

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Information not relevant

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal Regulations

TSCA:
All components are listed on TSCA Inventory.

Clean Air Act Section 112(b):

1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

Clean Air Act Section 602 Class I Substances:
No component(s) listed.

Clean Air Act Section 602 Class II Substances:
No component(s) listed.

Clean Water Act
Priority Pollutants:
No component(s) listed.

Clean Water Act
Toxic Pollutants:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)

DEA List I Chemicals (Precursor Chemicals):
No component(s) listed.

DEA List II Chemicals (Essential Chemicals):
No component(s) listed.

Metal Guard (Part A)

EPA List of Lists:

313 Category Code:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

EPCRA 313 TRI:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

RCRA Code:

1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

CAA 112 (r) RMP TQ:

No component(s) listed.

State Regulations

Massachusetts:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
7631-86-9	AMORPHOUS SILICATE HYDRATE
67-56-1	METHANOL

Minnesota:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
7631-86-9	AMORPHOUS SILICATE HYDRATE
67-56-1	METHANOL

New Jersey:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

New York:

1330-20-7	XYLENE (MIXTURE OF ISOMERS)
67-56-1	METHANOL

Pennsylvania:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
7631-86-9	AMORPHOUS SILICATE HYDRATE
67-56-1	METHANOL

California:

1314-13-2	ZINC OXIDE (ZINC COMPOUNDS, ZINC OXIDE FUME)
1330-20-7	XYLENE (MIXTURE OF ISOMERS)
7631-86-9	AMORPHOUS SILICATE HYDRATE
67-56-1	METHANOL

Proposition 65:

WARNING! This product contains chemicals known to the State of California to cause cancer, reproductive harm or birth defects.

67-56-1	METHANOL

International Regulations

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H330	Fatal if inhaled.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.

H370	Causes damage to organs.
H302	Harmful if swallowed.
H302+H332	Harmful if swallowed or if inhaled.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

LEGEND:
- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: EC Regulation 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
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- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department of Labor and Industry Hazardous Substances, Employee "Right to Know".
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This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
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Changes to previous review:
The following sections were modified: 14.

Metal Guard (Part B)

Safety Data Sheet

According to U.S.A. Federal Hazcom 2012

1. Identification

1.1. Product identifier

Code: **Armus_GA_070721-005**

Product name **Metal Guard (Part B)**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Anti-corrosion metal coating.**

1.3. Details of the supplier of the safety data sheet

Name **Armus LLC**

Full address **137 Grand Street 3rd floor NY**

District and Country **NY 10013**
United States
Tel. (+1) 9179575383

e-mail address of the competent person responsible for the Safety Data Sheet **bill@armussolutions.com**

1.4. Emergency telephone number

For urgent inquiries refer to **Tel. (+1) 9179575383 United States**

2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Classification and Hazard Statement

Metal Guard (Part B)

Hazard pictograms:

Acute toxicity, category 4	Harmful if swallowed.
Skin corrosion, category 1	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.
Skin sensitization, category 1	May cause an allergic skin reaction.

Signal words: **DANGER**

Hazard statements:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

Precautionary statements:

Prevention:

P260	Do not breathe fume, mist, or spray.
P280	Wear protective gloves / eye protection / face protection.
P270	Do not eat, drink, or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Response:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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 / shower.
P310	Immediately **c**all a POISON CONTROL CENTER / seek medical attention.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water / . . .
P301+P312	IF SWALLOWED: Call a POISON CONTROL CENTER / doctor / if you feel unwell.
P363	Wash contaminated clothing before reuse.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents or container according to local/national/international regulations.

2.2 Other hazards
Information not available.

3. Composition / information on ingredients

3.1. Mixtures
Contains:

Identification	Conc. %	Classification:
3-Aminopropyltriethoxysilane CAS 919-30-1 EC 213-048-4 INDEX 612-108-00-0	99.9	Acute toxicity, category 4 H302, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Skin sensitization, category 1 H317

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. First-aid measures

4.1. Description of first aid measures
EYES: Remove contact lenses if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.
INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorized by a doctor.
INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

4.2. Most important symptoms and effects, both acute and delayed
Specific information on symptoms and effects caused by the product are unknown.

4.3. Indication of any immediate medical attention and special treatment needed
Information not available

5. Fire-fighting measures

5.1. Extinguishing media
SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder, and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture
HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7. Handling and storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink, or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well-ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

8. Exposure controls / personal protection

8.1. Control parameters

Information not available.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

HAND PROTECTION

Protect hands with category III work gloves (OSHA 29 CFR 1910.138).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose limit of use will be defined by the manufacturer (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapors of various kinds and/or gases or vapors containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odorless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with wastewater or by dumping in waterways.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not available
Color	Not available
Odor	Not available
Odor threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point	Not available
Boiling range	Not available
Flash point	> 93°C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility	Not available
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidizing properties	Not available

9.2. Other information

Information not available.

10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid
Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

10.5. Incompatible materials
Information not available

10.6. Hazardous decomposition products
Information not available

11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects
Metabolism, toxicokinetics, mechanism of action and other information
Information not available

Information on likely routes of exposure
Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Information not available

Interactive effects
Information not available

ACUTE TOXICITY
Acute toxicity, category 4. Harmful if swallowed.

SKIN CORROSION / IRRITATION
Corrosive for the skin.

SERIOUS EYE DAMAGE / IRRITATION
Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION
Sensitizing for the skin.

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

CARCINOGENICITY
Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE
Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE
Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD
Does not meet the classification criteria for this hazard class

12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity
Information not available

12.2. Persistence and degradability
Information not available

12.3. Bioaccumulative potential
Information not available

12.4. Mobility in soil
Information not available

12.5. Results of PBT and vPvB assessment
On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0.1%.

12.6. Other adverse effects
Information not available

13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.
Disposal must be performed through an authorized waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 2735

14.2. UN proper shipping name

ADR / RID:	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
IMDG:	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
IATA:	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8

14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID:	NO
IMDG:	NO
IATA:	NO

14.6. Special precautions for user

ADR / RID:	HIN – Kemler: 80 Special Provision: -	Limited Quantities: 5L	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 5L	
IATA:	Cargo: Pass.: Special Instructions:	Maximum quantity: 60L Maximum quantity: 5L	Packaging instructions: 856 Packaging instructions: 852 A3, A803

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Information not relevant

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal Regulations

TSCA:
All components are listed on TSCA Inventory.

Clean Air Act Section 112(b):
No component(s) listed.

Clean Air Act Section 602 Class I Substances:
No component(s) listed.

Clean Air Act Section 602 Class II Substances:
No component(s) listed.

Clean Water Act
Priority Pollutants:
No component(s) listed.

Clean Water Act
Toxic Pollutants:
No component(s) listed.

DEA List I Chemicals (Precursor Chemicals):
No component(s) listed.

DEA List II Chemicals (Essential Chemicals):
No component(s) listed.

EPA List of Lists:
313 Category Code:
No component(s) listed.

EPCRA 302 EHS TPQ:
No component(s) listed.

EPCRA 304 EHS RQ:
No component(s) listed.

CERCLA RQ:
No component(s) listed.

EPCRA 313 TRI:
No component(s) listed.

RCRA Code:
No component(s) listed.

CAA 112 (r) RMP TQ:
No component(s) listed.

State Regulations

Massachusetts:
No component(s) listed.

Minnesota:
No component(s) listed.

New Jersey:
No component(s) listed.

New York:
No component(s) listed.

Pennsylvania:
No component(s) listed.

California:
No component(s) listed.

Proposition 65:
This product does not contain any substances known to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations
Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.

LEGEND:
- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: EC Regulation 1272/2008
- DEA: Drug Enforcement Administration
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