SAFETY DATA SHEETS (SDS)
Enviro Shield Part A

Version: 6

Issued by: Envirosystems Technologies

Date of Issue: November 2020

Hazard Identifiers

SECTION 1 – IDENTIFICATION OF MATERIAL & SUPPLIER

1.1	**Product Name:**	Enviro Shield Part A
	Manufacturer's Product Code:	N/A
1.2	**Recommended Use:**	Part A of a two component, water based epoxy coating
1.3	**Company:**	Envirosystems Technologies Pty Ltd
	Address:	295 Princes Highway St Peters, NSW 2044.
	Website:	www.envirosystems.com.au
	Telephone:	+61 2 85958699 (business hours)
	Fax:	+61 2 85958660
1.4	**Emergency Telephone:**	Info Safe – 1800 638 556, Poisons Centre – 131126

Other Information: All information in this SDS is to the best of our knowledge at time of publication. Users of this product should fully review this SDS prior to use to ensure best safety practices. Further information and or clarification can be obtained by contacting our technical department on the above telephone number.

SECTION 2 – HAZARDS IDENTIFICATION

2.1 Hazard Classification: Classified as **Hazardous** according to WHS Regulations, Australian GHS criteria and a **Dangerous Goods** according to the Australian Dangerous Goods Code.

Class	Category
Skin Corrosion/Irritation	2
Serious eye damage/eye irritation	2A
Skin Sensitization	1B
Specific target organ exposure - single	3
Hazardous to the aquatic environment- acute	2
Hazardous to the aquatic environment- chronic	2

2.2 Label Elements

Signal word **Warning**

H-code	Hazard Statements
H315	Causes skin irritation
H319	Causes serious eye irritation
H317	May cause allergic skin reaction
H336	May cause drowsiness or dizziness
H411	Toxic to aquatic life with long lasting effects
P-Code	**Precautionary Statement - Prevention**

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P264	Wash skin thoroughly after handling.
P270	Do not eat drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment
P280	Wear protective gloves / protective clothing / eye protection / face protection
P-Code	**Precautionary Statement - Response**
P362	Take off contaminated clothing and wash before reuse
P363	Wash contaminated clothing before reuse.
P305, P351, P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P302+P352	If on skin or hair: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P304, P340	If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P301, P330, P331	If swallowed: Rinse mouth. Do not induce vomiting.
P-Code	**Precautionary Statement - Storage**
	Store locked up in a cool well-ventilated area
P-Code	**Precautionary Statement - Disposal**
P501	Dispose of contents/ container to an approved waste disposal plant. In accordance with local regulation

2.3 Other Hazards None known

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances See section below for Mixtures

3.2 Mixtures

CAS No.	Material	Content %
68609-97-2	Dodecyl and tetradecyl glycidyl ethers	1-10%
25068-38-6	Bisphenol A / diglycidyl ether resin, liquid	30-60%
107-98-2	Propylene glycol monomethyl ether	1-10%
14808- 60- 7	Crystalline Silica (Quartz)	15-30%

SECTION 4 – FIRST AID MEASURES

4.1 Description of first aid measures

General Advice:
Immediately remove contaminated clothing. If in danger of loss of consciousness, place patient in recovery position and transport accordingly. Apply artificial reparation if necessary. First aid personal should pay attention to the own safety.

Ingestion:

IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. For advice, contact a Poisons Information Centre or a doctor. Urgent hospital treatment is likely to be needed. In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise: INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. NOTE: Wear a protective glove when inducing vomiting by mechanical means.

Inhalation:

Keep patient calm and remove to fresh air. Transport to hospital, or doctor.

Eye Contact:

While holding eyes open, gently flood with plenty of fresh water for 15 minutes. Seek medical attention without delay and if pain persists or recurs also seek medical attention. Skilled personnel should only undertake removal of contact lenses after an eye injury.

Skin Contact:

Flush contacted area thoroughly with soap and plenty of water. Seek medical attention in event of irritation. Remove contaminated clothing including footwear.

4.2	**Most important symptoms and effects, both acute and delayed**	Any relevant information can be found in other parts of this section and in sections 2 and 11.
4.3	**Advice for doctor**	Treat symptomatically.

SECTION 5 – FIRE FIGHTING MEASURES

5.1	**Extinguishing media**	Suitable extinguishing media: Water fog or fine spray, dry chemical powder, foam, BCF (where regulations permit). Alcohols resistant foams are preferred. Protein foams may functions but will be less effective. Unsuitable extinguishing media that may not be used for safety reasons: Do not use direct water stream as it might spread the fire.
5.2	**Special hazards arising from the substance or mixture**	Oxides of carbon and other possibly toxic fumes from fire.
5.3	**Advice for firefighters**	Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit toxic fumes of carbon monoxide (CO). Combustion products include:, carbon dioxide (CO2), phenolics products typical of burning organic material. Closed containers may rupture due to pressure buildup under fire conditions.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Secure the area. Wear personal protection equipment (see section 8). Keep unprotected persons away. Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. If material is released indicate risk of slipping. Do not walk through spilled material.
6.2	**Environmental precautions**	Do not discharge into sewers or waterways and soil.
6.3	**Methods and material for containment and cleaning up**	Small or major spills should be absorbed with dry, inert filler (soil or sand) which then can be shoveled into appropriately labeled drums for disposal. Disposal of this material should be undertaken by a registered chemical disposal company.
6.4	**Reference to other sections**	Relevant information in other sections has to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7 – HANDLING & STORAGE

7.1	**Precautions for safe handling**	Ensure thorough ventilation of stores and work areas. Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Since this is in a liquid form when applied there is no risk from silica, however sometimes the product may be sanded after it has cured and solid. Respiratory protection must be worn as this product contains silica which is a health hazard. It may cause cancer or causes damage to organs through prolonged or repeated exposure by inhaled.
7.2	**Conditions for safe storage**	**Storage Requirements:** Store in a cool, dry and well-ventilated place. If two part products are mixed or allowed to mix in proportions other than manufacturer's recommendation, polymerisation with gelation and evolution of heat (exotherm) may occur. This may generate toxic vapour. Avoid reaction with amines, mercaptans, strong acids and oxidising agents **Temperature Conditions:** Up to 40º C **Protection from weather:** Store undercover and away from frost and moisture
7.3	**Specific end use(s)**	Once mixed with Part B and applied, produces a hard wearing, durable surface suitable for commercial and industrial applications.
7.4	**Regulations and standards (Australia):**	Classified as a Hazardous Liquid which should be stored and handled in accordance with regulations

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 **Control parameters**

Exposure limits

Ingredient	STEL	TWA
Propylene glycol monomethyl ether	100ppm	50ppm

Emergency Limits:

Ingredient	TEEL-1	TEEL-2	TEEL-3

bisphenol A/ diglycidyl ether resin, liquid	32 mg/m3	350 mg/m3	2100 mg/m3

8.2 Exposure controls

General protection and hygiene measures:
General ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations. Do not eat, drink or smoke when handling. Wash hands at the end of work and before eating. Remove contaminated, soaked clothing immediately.
Personal protection equipment:
Respiratory protection
Generally, not required however if ventilation is inadequate respiratory protection should be worn e.g. type A-P organic filter respirator of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent). In high vapour concentrations or if the respirator is the sole means of protection or in a suspected oxygen-deficient atmospheres such as empty vessels or confined spaces, use air-supplied full-face or hood and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye protection
Appropriate safety glasses or chemical goggles.
Hand protection
When handling liquid-grade epoxy resins wear chemically protective gloves (e.g nitrile or neoprene or pvc). Do NOT use cotton or leather (which absorb and concentrate the resin).
Skin protection
Overalls clothing or long sleeve shirt and long pants.
Other Information
Always wash hands before smoking, eating, drinking or using the toilet and after finishing work. Observe the usual precautions when handling chemicals.

8.3 Further information for system design and engineering measures

Ventilation is recommended under normal use conditions. State regulations on speed and direction of airflow away from operators must be observed. Keep containers closed when not in use.

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

9.1	**Odour:**	Mild
	Odour Threshold	Not determined
	Colour:	Light grey
	Physical State:	Low viscosity Liquid
	Flash Point:	Not determined
	Boiling Point:	>100 ºC
	Melting Point:	Not Available
	Specific Gravity:	0.95 – 1.05
	pH (5% solution):	10
	Solubility in Water (g/L):	Miscible
	Flammability:	Not flammable
	Lower Limit:	Not determined
	Higher Limit:	Not determined
	Vapour Pressure:	Not determined
	Vapour Density (Air = 1)	Not determined
9.2	**Other information**	None available

SECTION 10 – STABILITY AND REACTIVITY

10.1 -3	**Reactivity; Chemical stability; Possibility of hazardous reactions**	If stored and handled in accordance with standard industrial practices not hazardous reactions are known. Unstable in the present of incompatible material.
10.4	**Conditions to avoid**	Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.
10.5	**Incompatible materials**	Keep away from oxidizing agents, acids and alkalis and oxidizers.
10.6	**Hazardous decomposition products**	Oxides of carbon and other possibly toxic fumes from fire.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity/Effects

Propylene glycol monomethyl ether:
Acute oral toxicity
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. LD50, Rat, 4,016 mg/kg

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts. LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity
Brief exposure (minutes) is not likely to cause adverse effects. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm. LC50, Rat, 6 Hour, vapour, > 25.8 mg/l

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.
Repeated contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight temporary eye irritation. Corneal injury is unlikely.

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.
For respiratory sensitization: No relevant data found.

bisphenol A/ diglycidyl etherresin, liquid:
Acute toxicity
dermal (rat) LD50: >800 mg/kg
Eye (rabbit): 100mg – Mild

Serious eye damage/eye irritation
Oral (rat) LD50: 13447 mg/kg

Dodecyl and tetradecyl glycidyl ethers:
Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg

Skin corrosion/irritation
Skin – Rabbit Result: Irritating to skin. - 24 h (OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes – Rabbit Result: Mild eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitisation
Buehler Test - Guinea pig Result: May cause sensitisation by skin contact.

Chronic Toxicity/Effects

Enviro Shield part A:
Specific target organ systematic toxicity (single exposure)
Propylene glycol monomethyl ether: May cause drowsiness or dizziness.
Route of Exposure: Inhalation. Target Organs: Central nervous system

Specific target organ systematic toxicity (repeated exposure)
Propylene glycol monomethyl ether: Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
In animals, effects have been reported on the following organs: Kidney, Liver.

Genetic toxicity
Propylene glycol monomethyl ether: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Dodecyl and tetradecyl glycidyl ethers: Hamster ovary Result negative. Mutagenicity (micronucleus test) Mouse - male and female Result negative.

bisphenol A/ diglycidyl ether resin, liquid: In S. typhimurium strains TA100 and TA1535, BADGE (10-10,000 ug/plate) was mutagenic with and without S9; negative results were obtained in TA98 and TA1537 (Canter et al., 1986; Pullin, 1977). In a spot test, BADGE (0.05 or 10.00 mg) failed to show mutagenicity in strains TA98 and TA100 (Wade et al., 1979). Negative results were also obtained in the body fluid test using urine of female BDF and ICR mice (1000 mg/kg BADGE), the mouse host-mediated assay (1000 mg/kg), micronucleus test (1000 mg/kg), and dominant lethal assay (~3000 mg/kg).

Carcinogenicity
Propylene glycol monomethyl ether: Did not cause cancer in laboratory animals.

bisphenol A/ diglycidyl ether resin, liquid: IARC concluded that "there is limited evidence for the carcinogenicity of bisphenol A diglycidyl ether in experimental animals." Its overall evaluation was "Bisphenol A diglycidyl ether is not classifiable as to its carcinogenicity to humans.

Dodecyl and tetradecyl glycidyl ethers: IARC, no component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
Propylene glycol monomethyl ether: In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

bisphenol A/ diglycidyl ether resin, liquid: 50, 540, or 750 mg/kg) administered to rats via gavage for 14 weeks (P1) or 12 weeks (P2) produced decreased body weight in all males at the mid dose and in both males and females at the high dose, but had no reproductive effects. The NOEL for reproductive effects was 750 mg/kg.

Teratogenicity

Propylene glycol monomethyl ether: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

bisphenol A/ diglycidyl ether resin, liquid: 50, 540, or 750 mg/kg) administered to rats via gavage for 14 weeks (P1) or 12 weeks (P2) produced decreased body weight in all males at the mid dose and in both males and females at the high dose, but had no reproductive effects. The NOEL for reproductive effects was 750 mg/kg.

Aspiration Hazard
Propylene glycol monomethyl ether: Based on physical properties, not likely to be an aspiration hazard.

Silica:
Since this is in a liquid form when applied there is no risk from silica, however sometimes with general use of the product it may be sanded after it has cured and solid. Respiratory protection must be worn as this product contains silica which is a health hazard. It may cause cancer or causes damage to organs through prolonged or repeated exposure by inhaled.

Long Term Effects: No new information.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity

Propylene glycol monomethyl ether:
Acute toxicity in fish
Material is practically non-toxic to aquatic organisms on an acute basis
LC50, Leuciscus idus (Golden orfe), static test, 96 Hour, 6,812 mg/l, DIN 38412
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, >= 1,000 mg/l, OECD Test Guideline 203 or Equivalent
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 20,800 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 21,100 - 25,900 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), static test, 7 d, Growth rate inhibition, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

Microorganisms/Effect on sludge

Propylene glycol monomethyl ether:
IC50, activated sludge, static test, > 1,000 mg/l

Persistence and degradability

Propylene glycol monomethyl ether:
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready
10-day Window: Pass
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent

Theoretical Oxygen Demand: 1.95 mg/mg
Chemical Oxygen Demand: 1.84 mg/g

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 7.8 Hour
Method: Estimated.

bisphenol A/ diglycidyl ether resin, liquid:
water/soil High, air High

Bioaccumulative potential

Propylene glycol monomethyl ether:
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.37 at 20 °C Measured
Bioconcentration factor (BCF): < 2

bisphenol A/ diglycidyl ether resin, liquid:
LOW (LogKOW = 2.6835)

Mobility in soil

Propylene glycol monomethyl ether:
Potential for mobility in soil is very high (Koc between 0 and 50). Partition coefficient (Koc): 0.2 - 1.0 Estimated.

bisphenol A/ diglycidyl ether resin, liquid:
LOW (KOC = 51.43)

Additional Information

Do NOT discharge into sewer or waterways.

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Material Recommendation:
Material that cannot be used, reprocessed or recycled should be disposed of in accordance with Federal, State, and local regulations at an approved facility. Depending on the regulations, waste treatment methods may include, e.g., landfill or incineration.

Uncleaned packaging Recommendation:
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations. Uncleaned packaging should be treated with the same precautions as the material.

SECTION 14 – TRANSPORT INFORMATION

Transport Information

Not classified as a Dangerous Good according to the Australian Code for the Transportation of Dangerous Goods by Road and Rail.

Environmentally Hazardous Substances meeting the descriptions of UN3077 or UN 3082 are not subject to this Code when transported by road or rail in;
(a) packagings;
(b) IBCs; or
(c) any other receptacle not exceeding 500 kg(L).
- Australian Special Provisions (SP AU01) - ADG Code 7th Ed.

U.N. Number:	3082
DG Class:	9
EPG card:	N/A

	Hazchem Code:	3Z
	Proper Shipping Name:	Environmentally hazardous substance liquid N.O.S (epoxy resin)
	Packing Group:	III
Classification for SEA transport (IMO-IMDG)	U.N. Number:	UN 3082
	DG Class:	9
	Proper Shipping Name:	Environmentally hazardous substance liquid N.O.S (epoxy resin)
	Packing Group:	III
	Marine Pollutant:	Yes
Classification for AIR transport (IATA/ICAO)	U.N. Number:	UN 3082
	DG Class:	9
	Proper Shipping Name:	Environmentally hazardous substance liquid N.O.S (epoxy resin)
	Packing Group:	III

Label

SECTION 15 – REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	National and local regulations must be observed. For information on labeling please refer to section 2 of this document. **Poisons Schedule Number: S5**
	Australian Inventory:	Listed
	Controlled Schedule	Not listed substances
	Carcinogenic Substances:	

SECTION 16 – OTHER INFORMATION

Safety Data Sheets are updated regularly. Please ensure you have a current copy. SDS can be obtained from our website: www.envirosystems.com.au
The SDS should be used to assist in the Risk Management. Many other factors determine whether the reported Hazards are risks in any given workplace.
Specific Risks may be determined by reference to various Exposure Scenarios, Scale of use, Frequency of use and current or available engineering controls must be considered.

Emergency Telephone: Info Safe – 1800 638 556, Poisons Centre – 13112