

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Issue date: 02/20/2020 Revision date: 08/21/2024 Supersedes: 04/25/2024

SECTION 1: Identification Identification 1.1. : Armstrong Activator A Trade name Recommended use and restrictions on use 1.2. Recommended use : Epoxy hardener Restrictions on use : Product for industrial use only 1.3. Supplier ResinLab. LLC N109 W13300 Ellsworth Drive Germantown, WI 53022 - United States T:1-877-259-1669 Armstrong™ is a trademark of Henkel and its affiliates in the US and elsewhere, and used under license. Product manufactured under license from Henkel. 1.4. **Emergency telephone number** Emergency number : CHEMTREC:1-800-424-9300 (USA); +1 703-527-3887 (International) SECTION 2: Hazard(s) identification 2.1. Classification of the substance or mixture **GHS US classification** Acute toxicity (oral) Category 4 H302 Harmful if swallowed Acute toxicity (dermal) Category 4 Harmful in contact with skin H312 Acute toxicity (inhalation:dust,mist) Category 2 Fatal if inhaled H330 Skin corrosion/irritation Category 1B H314 Causes severe skin burns and eye damage Skin sensitization, Category 1 May cause an allergic skin reaction H317 Reproductive toxicity Category 2 H361 Suspected of damaging fertility or the unborn child Specific target organ toxicity - Single exposure, Category 3, May cause respiratory irritation H335 Respiratory tract irritation Specific target organ toxicity (repeated exposure) Category 1 H372 Causes damage to organs (respiratory tract) through prolonged or repeated exposure (Inhalation)

Full text of H statements : see section 16

2.2.	GHS Label elements, incl	uding prec	autionary state	ements
GHS US	labeling			
Hazaro	pictograms (GHS US)	-	^	^

Hazard pictograms (GHS US)

Signal word (GHS US)	: Danger
Hazard statements (GHS US)	 H302+H312 - Harmful if swallowed or in contact with skin H314 - Causes severe skin burns and eye damage H317 - May cause an allergic skin reaction H330 - Fatal if inhaled H335 - May cause respiratory irritation H361 - Suspected of damaging fertility or the unborn child H372 - Causes damage to organs (respiratory tract) through prolonged or repeated exposure (Inhalation)
Precautionary statements (GHS US)	 P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe dust/fume/gas/mist/vapors/spray. P261 - Avoid breathing dust/fume/gas/mist/vapors/spray. P264 - Wash hands, forearms and face 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 must not be allowed out of the workplace. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P284 - [In case of inadequate ventilation] wear respiratory protection. P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.

Version: 1.5

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting. P302+P352 - If on skin: Wash with plenty of water. P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. P310 - Immediately call a poison center or doctor. P312 - Call a poison center or doctor if you feel unwell. P314 - Get medical advice/attention if you feel unwell. P320 - Specific treatment is urgent (see supplemental first aid instruction on this label). P322 - Specific treatment (see supplemental first aid instruction on this label) P330 - Rinse mouth. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances Not applicable

3.2. Mixtures

Name	Product identifier	%
Diethylenetriamine	(CAS-No.) 111-40-0	≥ 90
N-(2-Aminoethyl)piperazine	(CAS-No.) 140-31-8	0.1 – 1.1

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures	
4.1. Description of first aid measures	
First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Call a physician immediately.
First-aid measures after skin contact	: Rinse immediately with plenty of water for 15 minutes. Remove/Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact	: Immediately rinse with plenty of water (for at least 15 minutes). Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.
4.2. Most important symptoms and effects	(acute and delayed)
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.
4.3 Immediate medical attention and spec	ial treatment if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures			
5.1.	Suitable (and unsuitable) extinguishing	ng n	nedia
Suitab	le extinguishing media	:	Water fog. Water spray. Dry powder. Foam. Carbon dioxide.
Unsuit	able extinguishing media	•	Do not use direct water stream

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.2.	Specific hazards arising from the che	mi	cal
Hazar fire	dous decomposition products in case of	:	Toxic fumes may be released, Carbon oxides (CO, CO2), Nitrogen oxides, ammonia
5.3.	Special protective equipment and pre	eca	utions for fire-fighters
Prote	ction during firefighting	:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
SECT	ION 6: Accidental release meas	ur	es
6.1.	Personal precautions, protective equ	ipn	nent and emergency procedures
6.1.1.	For non-emergency personnel		
Emerg	gency procedures	:	Do not breathe dust/fume/gas/mist/vapors/spray. Only qualified personnel equipped with suitable protective equipment may intervene.
6.1.2.	For emergency responders		
Prote	ctive equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
6.2.	Environmental precautions		
Avoid r	elease to the environment.		
6.3.	Methods and material for containmer	nt a	nd cleaning up
Metho	ods for cleaning up	:	Take up liquid spill into absorbent material.
Other	information	:	Dispose of materials or solid residues at an authorized site.
6.4.	Reference to other sections		
For furt	her information refer to section 13.		
SECT	ION 7: Handling and storage		
7.1.	Precautions for safe handling		
Additi	onal hazards when processed	:	When using a spray gun or other means to aerosolize the material, respiratory protection is recommended.
Preca	utions for safe handling	:	Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment.
Hygie	ne measures	:	Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
7.2.	Conditions for safe storage, including	g a	ny incompatibilities
Stora	ge conditions	:	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Diethylenetriamine (111-40-0)				
ACGIH	Local name	Diethylenetriamine		
ACGIH	ACGIH OEL TWA	1 ppm		
ACGIH	Remark (ACGIH)	TLV® Basis: URT & eye irr. Notations: Skin		
ACGIH	Regulatory reference	ACGIH 2024		
N-(2-Aminoethyl)piperazine (140-31-8)				
Not applicable				

8.2. Appropriate engineering controls

Appropriate engineering controls

: Provide local exhaust or general room ventilation.

- Environmental exposure controls
- : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Hand protection:

Protective gloves

Eye protection:

Safety glasses with side shields

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of inadequate ventilation, wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Amber
Odor	: Amine-like
Odor threshold	: No data available
рН	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 93 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 0.96 g/cm ³
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
VOC content	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.4. **Conditions to avoid**

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Aluminum. copper. Copper alloys. zinc. zinc alloys. Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information	
11.1. Information on toxicological effects	
Acute toxicity (oral)	Harmful if swallowed.
Acute toxicity (dermal)	Harmful in contact with skin.
Acute toxicity (inhalation) :	Inhalation:dust,mist: Fatal if inhaled.
	503 837 mg/kg body weight
ATE US (dermal)	1007.036 mg/kg body weight
ATE US (dust mist)	0.051 ma/l/4h
Diethylenethamme (111-40-0)	1553 mg/kg body weight (Pat Male, Experimental value, Oral, 14 day(s))
	1045 mg/kg body weight (Rat, Male, Experimental value, Oral, 14 day(s))
	164 ppm/4b
	F00 mg/kg bady weight
	1100 mg/kg body weight
	100 mg/kg body weight
ATE US (gases)	
ATE US (vapors)	0.5 mg//4h
ATE US (dust, mist)	0.05 mg/l/4h
N-(2-Aminoethyl)piperazine (140-31-8)	
LD50 oral rat	2097 mg/kg body weight (Rat, Male, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	866 mg/kg bw/day (24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
ATE US (oral)	2097 mg/kg body weight
ATE US (dermal)	866 mg/kg body weight
Skin corrosion/irritation :	Causes severe skin burns.
Serious eye damage/irritation :	Assumed to cause serious eye damage
Respiratory or skin sensitization :	May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
5	
Reproductive toxicity :	Suspected of damaging fertility or the unborn child.
STOT-single exposure :	May cause respiratory irritation.
Diethylenetriamine (111-40-0)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure :	Causes damage to organs (respiratory tract) through prolonged or repeated exposure (Inhalation).
Diethylenetriamine (111-40-0)	
LOAEL (oral,rat,90 days)	530 – 620 mg/kg body weight Animal: rat, Guideline: other:
NOAEL (oral,rat,90 days)	70 – 80 mg/kg body weight Animal: rat, Guideline: other:
N-(2-Aminoethyl)piperazine (140-31-8)	
STOT-repeated exposure	Causes damage to organs (respiratory system) through prolonged or repeated exposure
	(Inhalation).
Aspiration hazard :	Not classified
Symptoms/effects after inhalation :	May cause respiratory irritation.
Symptoms/effects after skin contact :	Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact :	Serious damage to eyes.
08/21/2024	EN (English US) 5/9

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Symptoms/effects after ingestion

: Burns. SECTION 12: Ecological information 12.1. Toxicity Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms. Diethylenetriamine (111-40-0) LC50 - Fish [1] 430 mg/l (EU Method C.1, 96 h, Poecilia reticulata, Semi-static system, Fresh water, Experimental value, GLP) EC50 - Crustacea [1] 65 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP) EC50 - Crustacea [2] 16 mg/l Test organisms (species): Daphnia magna 1164 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, ErC50 algae Static system, Fresh water, Experimental value, GLP) LOEC (chronic) 11.3 mg/l Test organisms (species): Daphnia magna Duration: '21 d' 5.6 mg/l Test organisms (species): Daphnia magna Duration: '21 d' NOEC (chronic) NOTO share is fish > 10 mm m/l Tast annumisma a sula stus Dunstism. 100 dl (an a size). Contanget

NOEC chronic fish	> 10 mg/l Test organisms (species): Gasterosteus aculeatus Duration: 28 d	
N-(2-Aminoethyl)piperazine (140-31-8)		
LC50 - Fish [1]	2190 mg/l (96 h, Pimephales promelas, Static system, Fresh water, Experimental value)	
EC50 - Crustacea [1]	58 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Experimental value, GLP)	
ErC50 algae	> 1000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Fresh water, Experimental value, GLP)	

12.2. Persistence and degradability

Diethylenetriamine (111-40-0)		
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.	
N-(2-Aminoethyl)piperazine (140-31-8)		
Persistence and degradability	Not readily biodegradable in water.	
Chemical oxygen demand (COD)	0.56 g O ₂ /g substance	

12.3. **Bioaccumulative potential**

Diethylenetriamine (111-40-0)		
BCF - Fish [1]	0.3 – 6.3 (OECD 305: Bioconcentration: Flow-Through Fish Test, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value, Fresh weight)	
Partition coefficient n-octanol/water (Log Pow)	-1.6 (Estimated value, 20 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).	
N-(2-Aminoethyl)piperazine (140-31-8)		
BCF - Fish [1]	0.3 – 6.3 (OECD 305: Bioconcentration: Flow-Through Fish Test, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Read-across)	
Partition coefficient n-octanol/water (Log Pow)	-1.48 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).	

12.4. **Mobility in soil**

Diethylenetriamine (111-40-0)		
No data available in the literature		
3.4 – 4.6 (log Koc, EPA OTS 796.2750: Sediment and Soil Adsorption Isotherm, Experimental value, GLP)		
Low potential for mobility in soil. Soil contaminant.		
N-(2-Aminoethyl)piperazine (140-31-8)		
No data available in the literature		
4.57 (log Koc, Read-across, GLP)		
Low potential for mobility in soil.		

12.5. Other adverse effects

No additional information available

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 13: Disposal considerations	
13.1. Disposal methods	
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
SECTION 14: Transport information	
Department of Transportation (DOT) In accordance with DOT	
Transport document description (DOT) UN-No.(DOT) Proper Shipping Name (DOT) Class (DOT) Packing group (DOT) Hazard labels (DOT)	 UN2079 Diethylenetriamine, 8, II UN2079 Diethylenetriamine 8 - Class 8 - Corrosive material 49 CFR 173.136 II - Medium Danger 8 - Corrosive
DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx) DOT Special Provisions (49 CFR 172.102)	 202 242 B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. T7 - 4 178.274(d)(2) Normal
DOT Packaging Exceptions (49 CFR 173.xxx)	(39 F) and 30 C (122 F), respectively. : 154
(49 CFR 173.27)	: 1L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters",52 - Stow "separated from" acids
Emergency Response Guide (ERG) Number	: 154
	. No supplementary information available.
Not applicable	
Transport by sea	
Transport document description (IMDG) UN-No. (IMDG)	 UN 2079 DIETHYLENETRIAMINE, 8, II 2079 DIETHYLENETRIAMINE
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: II - substances presenting medium danger
08/21/2024	EN (English US) 7/9

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Limited quantities (IMDG)	: 1L
Air transport	
Transport document description (IATA) UN-No. (IATA)	: UN 2079 Diethylenetriamine, 8, II : 2079
Proper Shipping Name (IATA)	: Diethylenetriamine
Class (IATA)	: 8 - Corrosives
Packing group (IATA)	: II - Medium danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Diethylenetriamine (111-40-0)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		
N-(2-Aminoethyl)piperazine (140-31-8)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		

15.2. International regulations

CANADA

Diethylenetriamine (111-40-0)

Listed on the Canadian DSL (Domestic Substances List)

N-(2-Aminoethyl)piperazine (140-31-8)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Contains no substance(s) listed on the REACH Candidate List

Diethylenetriamine (111-40-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

N-(2-Aminoethyl)piperazine (140-31-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Diethylenetriamine (111-40-0)			
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active			
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)			
Listed on KECL/KECI (Korean Existing Chemicals Inventory)			
Listed on NZIoC (New Zealand Inventory of Chemicals)			
Listed on INSQ (Mexican National Inventory of Chemical Substances)			
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)			
N-(2-Aminoethyl)piperazine (140-31-8)			
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active			
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)			
Listed on KECL/KECI (Korean Existing Chemicals Inventory)			
Listed on NZIoC (New Zealand Inventory of Chemicals)			
Listed on INSQ (Mexican National Inventory of Chemical Substances)			
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)			
15.3. US State regulations			

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Component	State or local regulations
Diethylenetriamine(111-40-0)	U.S Massachusetts - Right To Know List; U.S New Jersey - Right to Know Hazardous Substance List; U.S Pennsylvania - RTK (Right to Know) List
N-(2-Aminoethyl)piperazine(140-31-8)	U.S Massachusetts - Right To Know List; U.S New Jersey - Right to Know Hazardous Substance List; U.S Pennsylvania - RTK (Right to Know) List

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date

: 08/21/2024

Full text of hazard classes and H-statements:

H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H335	May cause respiratory irritation
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure

SDS US - ResinLab

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.