RJ Watson Inc

Safety Data Sheet

1. Product and company identification

Product Name **Zed Seal Epoxy Adhesive – Part B: Hardener**

Internal Code(s) 260161

Product Type Curing Agent for Epoxy Resin

Product Use Civil Engineering Resin System

Manufacturer/Supplier

RJ Watson, Inc.
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Alden, NY 14004
U.S.A.

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Telephone

For 24-Hour Emergency Response Information
Call ChemTel: (800) 255-3924 (U.S./Canada)
+1-813-248-0585 (International)

For Other Product or Technical Information
Call RJ Watson, Inc.: (716) 901-7020

2. Hazards identification

Product Form Viscous, Black Liquid

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazard Category Classification:

Acute Toxicity – Inhalation	4	Toxicity via inhalation of mists
Skin Corrosion / Irritation	1B	Skin Corrosion; Sub-Category 1B
Serious Eye Damage / Eye Irritation	1	Serious eye damage / irreversible effects on the eye
Skin Sensitization	1	Skin Sensitizer
Reproductive Toxicity	2	Suspected human reproductive toxicant

GHS Pictogram(s):

Signal Word: **DANGER**

Hazard Statement:

H332	Harmful if Inhaled.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility or the unborn child.

Precautionary Statements:

Prevention:

P260	Do not breathe dusts or mists.
P271	Use only outdoors or in a well-ventillated area.
P264	Wash hands and exposed skin thoroughly after handling.
P280	Wear protective (chemical-resistant impervious rubber) gloves / protective clothing / eye protection / face protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P201	Obtain special instructions before use.

	P202	Do not handle until all safety precautions have been read and understood.
Response:	P304 + P340	**IF INHALED:** Remove person to fresh air and keep comfortable for breathing.
	P310	Immediately call a POISON CENTER or doctor / physician.
	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 plenty of water or shower.
	P302 + P352	Wash with plenty of water and soap.
	P333 + P313	If skin irritation or rash occurs: Get medical advice / attention.
	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. Continue rinsing.
	P310	Immediately call a POISON CENTER or doctor / physician.
	P308 + P313	If exposed or concerned: Get medical advice / attention.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents / container to a disposal facility in accordance with all local / national / international regulations.

3. Composition/Information on ingredients

Ingredient name	CAS number	WT %
Tall Oil Fatty Acid reaction products with Tetraethylenepentamine	68953-36-6	**15.0 – 30.0%**
Calcium Carbonate	1317-65-3	**15.0 – 30.0%**
Diethylenetriamine (DETA)	111-40-7	**10.0 – 15.0%**
Phenol, 4,4‘-(1-methylethylidene)bis-	80-05-7	**10.0 – 15.0%**
Tris-2,4,6-(dimethylaminomethyl)phenol	90-72-2	**1.0 – 2.0%**

4. First aid measures

Eye contact

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Continue to gently flush the eyes for one hour or until medical attention is received.

Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. In the event of any complaints or symptoms, avoid further exposure. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation

Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion

Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Notes to physician

No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Potential acute health effects

Inhalation	Harmful if inhaled and may cause delayed lung injury. Inhalation of aerosol may cause irritation to the upper respiratory tract. Risk of serious damage to the lungs (by inhalation). May cause nose, throat, and lung irritation. Can cause severe eye, skin and respiratory tract burns. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.
Ingestion	May cause severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Skin	Slightly toxic by skin absorption. May cause skin irritation and skin burns. May cause an allergic skin reaction in certain individuals, with symptoms of reddening, itching, swelling, and rash.
Eyes	May cause irritation and/or eye damage with reddening, tearing, and stinging of the eyes. Eye burns and blindness may result in cases of direct contact with the eye.

Potential chronic health effects

Chronic effects	Prolonged contact may result in chemical burns and permanent damage. Repeated or prolonged contact may cause skin &/or respiratory sensitization, asthma and eczema.
Carcinogenicity	This product contains < 0.3 wt% Carbon Black (CAS # 1333-86-4) which is classified as possibly carcinogenic to humans by IARC (IARC Group 2B) via inhalation. This product contains < 0.2 wt% Quartz (CAS # 14808-60-7) which is classified as carcinogenic to humans by IARC (IARC Group 1; Monograph 68).
Developmental effects	None known.
Fertility effects	May impair fertility, based on component data and the toxicology of similar products.
Target organs	Skin, Eyes, Respiratory Tract, Kidneys. Liver

Over-exposure signs/symptoms

Inhalation	Respiratory irritation; coughing. Irritation of the nose, throat, and lungs.
Ingestion	Burns of the mouth, throat, and gastrointestinal tract.
Skin	Moderate to severe irritation. Contact with skin may cause burns.
Eyes	Pain and/or irritation, redness, watering eyes. Burns of the eyes.
Medical conditions aggravated by over-exposure	Pre-existing eye, skin, or respiratory conditions.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Flammability properties of the product	**Flash Point:** >102°C (>216°F) **Flash Point Method Used:** Pensky-Martens Closed Cup (ASTM D-93) **Flammable Limits in Air (Lower - % by volume):** Not determined **Flammable Limits in Air (Upper - % by volume):** Not determined

Extinguishing media

Suitable	Alcohol-resistant Foam, Carbon Dioxide, Dry Chemical; Dry Sand; Limestone
Not suitable	Water Spray (may cause frothing).
Special exposure hazards	Wear self-contained breathing apparatus (SCBA) to protect from hazardous combustion products. Ammonia gas may be liberated at high temperatures. In case of incomplete combustion an increased formation of oxides of nitrogen

	(NOx) is to be expected. Incomplete combustion may form carbon monoxide. May generate ammonia gas. May generate toxic nitrogen oxide gases. Burning produces noxious and toxic fumes. Downwind personnel must be evacuated.
Hazardous combustion products	Carbon Monoxide, Carbon Dioxide, Nitrogen Oxides (NOx), Ammonia; other toxic fumes.
Unusual Fire and Explosion Hazards	Sealed, fire-exposed containers may build up dangerous pressure, potentially resulting in explosive rupture. Keep sealed fire-exposed containers cool with water spray.
Special protective equipment & instructions for fire-fighters	Fire-fighters should wear appropriate protective equipment including self-contained breathing apparatus (SCBA). Fight fire from safe distance and protected location. Avoid direct personal contact with liquid even after fire is out to prevent potentially serious thermal burns. Use water spray or fog for cooling exposed containers. Apply aqueous extinguishing media carefully to prevent frothing/steam explosion. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Prevent fire-fighting water from entering environment.

6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Put on appropriate personal protective equipment (see section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Spill Response	Clean up large spills with vacuum truck. Soak up small spills with absorbent material and place in labeled containers for recovery or disposal.

7. Handling and storage

Handling	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Avoid tasting or swallowing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.
Storage	Keep in the original container or an approved alternative made from a compatible material, kept tightly sealed when not in use. Take measures to prevent the introduction of water or atmospheric moisture. Store at room temperature in a dry place away from heat and direct sunlight. Store in accordance with all local and government regulations. Recommended storage temperature: 59 - 95°F (15 - 35°C).

8. Exposure controls/personal protection

CAS Number	Chemical Identity	Exposure Limits				
		ACGIH		OSHA		NIOSH
		TWA	STEL	PEL	STEL	REL
68953-36-6	Tall Oil Fatty Acid reaction products with Tetraethylenepentamine	N.E.	N.E.	N.E.	N.E.	N.E.
1317-65-3	Calcium Carbonate (limits as total dust) (limits as respirable dust)	N.E. N.E.	N.E. N.E.	15 mg/m3 5 mg/m3	N.E. N.E.	10 mg/m3 5 mg/m3
111-40-7	Diethylenetriamine (DETA)	1 ppm (4 mg/m^3)	N.E.	1 ppm (4 mg/m^3)	N.E.	1 ppm (4 mg/m^3)
80-05-7	Phenol, 4,4'-(1-methylethylidene)bis-	N.E.	N.E.	N.E.	N.E.	N.E.
90-72-2	Tris-2,4,6-(dimethylaminomethyl)phenol	N.E.	N.E.	N.E.	N.E.	N.E.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are located in the work area.
Respiratory	Use a properly fitted, air-purifying or air-supplied respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator use is required when this product is applied by spraying. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Eyes	Chemical splash goggles are required. Wear face shield if splashing hazard exists.
Skin	Impervious gloves made of Neoprene, Butyl Rubber or Nitrile Rubber should be used. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

Form	Viscous Liquid
Color	Black
pH	Alkaline (pH > 7)
Boiling point	Not determined
Freezing Point	Not determined
Specific gravity	1.20
Vapor pressure	< 5.17 mmHg at 21°C (70°F)
Solubility in water	Slightly soluble; Reacts slowly with water to form ammonia
Evaporation rate	< 1 (Slower than Butyl Acetate)
Vapor density	> 1 (Heavier than air)

10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Sparks, open flames, and other sources of ignition. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. CAUTION! N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations.
Materials to avoid	Reactive or incompatible with the following materials: Oxidizing agents. Reaction with peroxides may result in violent decomposition of peroxide, possibly creating an explosion. Sodium hypochlorite. Organic acids (i.e. acetic acid, citric acid, etc.) and mineral acids. Nitrous acid and other nitrosating agents. Reactive metals (e.g. sodium, calcium, zinc etc.). Materials reactive with hydroxyl compounds. Heat and/or water and atmospheric moisture will affect product quality.
Other hazards	Curing reaction may release significant heat when mixed with Part A.

Hazardous decomposition products Decomposition products upon combustion may include the following materials: Nitrogen Oxides, Nitric Acid, Ammonia, Carbon Dioxide; Carbon Monoxide, Nitrosamines.

11. Toxicological information

Acute toxicity	LD50 Oral	Rat	>3671 mg/kg (Acute Toxicity Estimate)
	LD50 Dermal	Rabbit	>3147 mg/kg (Acute Toxicity Estimate)
	LC50 Inhalation	Rat	1.42 mg/L (aerosol/mist); (ATE)

Skin Irritation Severe skin irritation.

Eye Irritation Severe eye irritation.

Sensitization May cause sensitization by skin contact.

Mutagenicity A component of this product may be mutagenic, the data is inconclusive. This component was mutagenic in a bacterial assay. This component did not cause chromosome damage in an in vivo micronucleus assay.

ReproductiveToxicity A component of this product may impair fertility.

Carcinogenicity Classification

Carbon Black; < 0.3 wt% (CAS # 1333-86-4)	IARC	Group 2B (Possibly carcinogenic to humans)
	NTP	Not listed
	OSHA	Not regulated as a carcinogen
	EU	Not classified
Quartz; < 0.2 wt% (CAS # 14808-60-7)	IARC	Monograph 68; Group 1 (Carcinogenic to humans)
	NTP	Known Human Carcinogen
	OSHA	Potential Carcinogen
	EU	May cause cancer if inhaled

12. Ecological information

Environmental effects

Fish
(calculated estimate based on mixture data)
LC50: > 100 mg/l
Exposure time: 96 h
Species: *Oncorhynchus mykiss* (rainbow trout)

Aquatic invertebrates
(calculated estimate based on mixture data)
EC50: > 100 mg/l
Exposure time: 48 h
Species: *Daphnia magna* (Water flea)

Algae
(calculated estimate based on mixture data)
ErC50: >100 mg/l
Exposure time: 72 h

Biodegradability Not readily biodegradable.

Additional Information Bioaccumulation is not anticipated.

13. Disposal considerations

Waste disposal The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

The data provided in this section is for information only and may not be specific to each package size or mode of transport. Apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR	UN2735	Amines, liquid, corrosive, N.O.S. (Polyamidoamine, Diethylenetriamine)	8; PGIII	N/A.
TDG	UN2735	Amines, liquid, corrosive, N.O.S. (Polyamidoamine, Diethylenetriamine)	8; PGIII	N/A.
IMO/IMDG	UN2735	Amines, liquid, corrosive, N.O.S. (Polyamidoamine, Diethylenetriamine)	8; PGIII	N/A.
IATA	UN2735	Amines, liquid, corrosive, N.O.S. (Polyamidoamine, Diethylenetriamine)	8; PGIII	N/A.

*PG : Packing group

LIMITED QUANTITIES:
When limited quantities of this product are offered for transportation, except by air, and packaged in proper combination packages with individual inner containers of less than 5.0 L (1.3 gallons) net capacity each, this product may ship as LIMITED QUANTITY. Placarding rules may still apply.

When limited quantities of this product are offered for transportation by air and packaged in proper combination packages with individual inner containers of less than 0.5 L (0.13 gallons) net capacity each and total net quantity per package of less than 1.0 L (0.26 gallon), this product may ship as LIMITED QUANTITY. Refer to IATA Packing Instruction Y841. Limited Quantity packages for air transport require both the Class 8 (Corrosive) label and the “Y” Limited Quantity label.

15. Regulatory information

US regulations

HCS Classification

When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

U.S. Federal regulations

SARA Title III, Section 311/312 Classification
Acute (Immediate) Health Hazard

SARA Title III, Section 313 - Supplier Notification
This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Phenol, 4,4'-(1-methylethylidene)bis- (CAS # 80-05-7).

SARA Section 302 Extremely Hazardous Substances
None required.

State regulations

Massachusetts RTK Substances
4,4'-Isopropylidenediphenol (CAS # 80-05-7)

New Jersey RTK Hazardous Substances
Calcium Carbonate (CAS # 1317-65-3)
Diethylenetriamine (CAS # 111-40-0)
Phenol, 4,4'-(1-methylethylidene)bis- (CAS # 80-05-7)
Tetraethylenepentamine (CAS # 112-57-2); ≤ 0.95%
N-Aminoethylpiperazine (CAS # 140-31-8); ≤ 0.85%
Carbon Black (CAS # 1333-86-4); ≤ 0.20%
Quartz (CAS # 14808-60-7); ≤ 0.15%

Pennsylvania RTK Hazardous Substances
Limestone (CAS # 1317-65-3)
1,2-Ethanediamine, N-(2-Aminoethyl)- (CAS # 111-40-0)
4,4'-Isopropylidenediphenol (CAS # 80-05-7)
Tetraethylenepentamine (CAS # 112-57-2); ≤ 0.95%
1-Piperazineethanamine (CAS # 140-31-8); ≤ 0.85%
Carbon Black (CAS # 1333-86-4); ≤ 0.20%
Quartz (CAS # 14808-60-7); ≤ 0.15%

California Prop. 65: WARNING: This product contains the following chemical(s) known to the State of California to cause cancer:

None known.

California Prop. 65: WARNING: This product contains the following chemical(s) known to the State of California to be a reproductive toxin:

None known

International regulations

Chemical inventories	Europe inventory - All components are listed or exempted. Australia inventory (AICS) - All components are listed or exempted. Canada inventory - All components are listed or exempted. Japan inventory - Not on inventory. China inventory (IECSC) - All components are listed or exempted. Korea inventory - All components are listed or exempted. Philippines inventory (PICCS) - All components are listed or exempted. United States inventory (TSCA 8b) - All components are listed or exempted.
WHMIS Hazard Classification (Canada)	Class D-2A: Very Toxic Material Causing Other Toxic Effects Class D-2B: Toxic Material Causing Other Toxic Effects Class E: Corrosive Material
Restriction of Hazardous Substances (RoHS)	This product is RoHS compliant and does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) at levels greater than the maximum concentration values specified in Directive 2011/65/EU (dated 8 June, 2011) of the European Parliament and of the Council of the European Union.

16. Other information

Hazardous Material Information System III (U.S.A.)	Health: 3 Flammability: 1 Physical hazards: 0 Personal Protection: X

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. HMIS® ratings are to be used with a fully implemented HMIS® program.

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