



Certificate of Analysis

Product Name: RoyOxy RAC 9502

Lot Number: 090120C01

Date: 1/20/2020

<u>Property</u>	<u>Specification</u>	<u>Result</u>
Appearance	Brown Liquid	Pass
Color (Gardner)	Max 8	6.4
Viscosity @25°C (cP)	200 - 500	304
Amine Value (mg KOH/g)	400 - 460	409
Gel Time (minutes)	Report	160

Disclaimer:

All recommendations for use of our products, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us are based on the current state of our knowledge. Although the information contained in this sheet is accurate to the best of our knowledge, no liability can be accepted in respect of such information and no warranty or conditions are intended in respect of the product described as the conditions of applications are beyond our control. We do not guarantee performance in the end application. The responsibility of testing the product lies with the user.

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Technical Data Sheet RoyOxy RAC 9502 Amidoamine Curing Agent

Description

RoyOxy RAC 9502 is an amidoamine curing agent for epoxy systems.

Applications

- Adhesives and Sealants
- Civil Engineering and Construction
- Coatings
- Structural Composites
- Laminates

Advantages

- Low viscosity
- Long pot life
- Cures in low temperatures
- Good adhesion

Typical Properties

PROPERTY	UNIT	RANGE
Appearance	Visual	Amber Liquid
Color	Gardner	Max 8
Viscosity @ 25° C	cPs	200 - 1000
Amine Value	mg KOH/g	400 - 460
AHEW		~ 90
Specific Gravity		0.95
Mix Ratio with RAR 928	phr	50
Pot Life (200g mix @ 25°C)	min	120 - 150

Storage and Handling

RoyOxy RAC 9502 should be stored in its original packaging under dry conditions to protect the material from humidity and excessive heat. Under these conditions, it will have a shelf life of at least 2 years. Please refer to the SDS of RoyOxy RAC 9502 for detailed handling and safety instructions.

Disclaimer:

The properties listed above are typical values and should not be taken as product or sales specifications. All recommendations for use of our products, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us are based on the current state of our knowledge. Although the information contained in this sheet is accurate to the best of our knowledge, no liability can be accepted in respect of such information and no warranty or conditions are intended in respect of the product described as the conditions of applications are beyond our control. We do not guarantee performance in the end application. The responsibility of testing the product lies with the user.





Royce International Corp.

Safety Data Sheet

Section 1 - Identification of the Substance/Mixture and of the Company

Date of SDS Revision: July 8, 2016

1.1 Product identifier

Product Name: **RoyOxy™ RAC-9502**
Description: **Polyamide Curing Agent**
Manufacturer/Supplier: Royce International Corp.

1.2 Relevant identified uses of the preparation and uses identified against

Use: Hardener for epoxy coatings
For professional/industrial use only.

1.3 Details of the supplier of the safety data sheet

Royce International Corp. Telephone: (941)894-1228 Fax: (941)894-1321
3400 S. Tamiami Trail, Ste. 300 Web: www.royceintl.com
Sarasota, FL 34239 Contact: info@royceintl.com

1.4 Emergency telephone number

CHEMTREC: (800)424-9300
(International): (703)527-3887

Section 2 - Hazards Identification

2.1 Classification of the substance/mixture

2.1.1 Classification according to OSHA 29CFR1910.1200 and EU (EC) 1272/2008

Acute toxicity/oral, cat. 5	H303
Skin irritation cat. 3	H316
Eye irritation cat. 2B	H320

2.2 Labeling elements

2.2.1 Labeling according to OSHA 29CFR1910.1200 and EU (EC) 1272/2008

Signal Word: Warning

Hazard pictogram: (none assigned)

Hazard statements

H303 May be harmful if swallowed.

H316 Causes mild skin irritation.

H320 Causes eye irritation.

Precautionary statements

P264 Wash hands and skin contact areas thoroughly after handling.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses if present and easy to do - continue rinsing.

P332 + P313 If skin irritation occurs: Get medical attention.

P337 + P313 If eye irritation persists: Get medical attention.

P501 Dispose of contents/container to a licensed/permitted incinerator or other thermal destruction facility in compliance with all applicable environmental control regulations.

2.3 OSHA GHS classification

This product is classified as hazardous as defined within the GHS OSHA Hazard Communication Standard 29CFR1910.1200.

Section 3 - Composition / Information on Ingredients

3.1 Substances

<u>Component</u>	<u>Concentration</u>
Fatty acids, C ₁₈ unsatd., dimers, reaction products with polyethylenepolyamines CAS No. 68410-23-1 EINECS No. (polymer components listed) GHS/CLP: Acute tox. (oral) 5 - H303; Skin irrit. 3 - H316; Eye irrit.. 2B - H320	>95%

3.2 Mixtures

N/A

Section 4 - First Aid Measures

4.1 Description of First Aid measures

General advice: consult a physician; show this SDS to doctor in attendance.

In the event of skin contact: Wash thoroughly with soap and water for at least 15 minutes. If irritation develops, get medical attention.

In the event of eye contact: Bathe the eye with running water for at least 15 minutes, lifting upper and lower eyelids. Get medical attention if irritation persists.

In the event of swallowing: Rinse out mouth with water; drink several glasses of water.

In the event of exposure by inhalation: Move person to fresh air and keep at rest in a position comfortable for breathing; if breathing is irregular, provide artificial respiration; if there are breathing difficulties, administer oxygen; get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Skin/eye irritant.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Corticoid preparations and antihistamine may assist treating skin and mucous membrane exposures.

Eye wash stations and emergency showers should be available.

Section 5 - Fire Fighting Measures

5.1 Extinguishing media

Carbon dioxide, alcohol resistant foam, dry chemical, water fog, limestone powder; use water spray to cool fire-exposed containers.

5.2 Special hazards arising from the substance or mixture

Exposure to decomposition products may be harmful to health; combustion products may include but are not limited to: carbon monoxide, carbon dioxide, nitrogen oxides, ammonia, nitric acid; the formation of hydrocarbon fragments is possible in the initial stages of fire (especially in between 400°C and 700°C); smoke may contain particles of the original material as well.

5.3 Advice for fire fighters: Use protective fire fighting clothing and positive pressure self-contained breathing apparatus to protect against potential harmful and/or irritating fumes. Do not use high pressure water jet as this may spread the area of the fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Isolate area; ensure adequate ventilation; use appropriate personal protection equipment; avoid breathing mist, vapors, spray; avoid contact with skin, eyes and clothing; keep unnecessary and unprotected personnel from entering the involved area.

6.2 Environmental precautions:

Halt the flow of material as soon as practical using appropriate barriers; turn containers leak-side up to stop the escape of liquid. Prevent contamination of soil and water. Prevent from spreading or entering into drains, ditches, waterways by using sand, earth or appropriate barriers.

6.3 Methods and material for containment and cleaning up

Soak up with sand, earth, diatomaceous earth or other suitable inert absorbent material; collect into suitable waste disposal containers. Reuse uncontaminated material when possible. Wash spillage site with dilute acetic acid then rinse with large amounts of water. Dispose of in accordance with applicable local and federal environmental control laws and regulations.

6.4 Reference to other sections

For more information on exposure controls, personal protection and disposal, review data in section 8 and section 13 of this SDS.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Ensure adequate ventilation of workplace and storage areas; avoid skin contact; do not breathe mist, vapors, spray; use recommended personal protective equipment; wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated place. Recommended storage temp.: 10-40°C (50-104°F). Keep away from incompatible materials. Keep container tightly closed.

Incompatibilities: Do not store together with strong oxidizing agents.

Section 8 - Exposure Controls / Personal Protection

8.1 Control parameters

Occupational exposure limits: OSHA/PEL: None established

8.1.2 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. Reference can be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents for the determination of hazardous substances.

8.2 Exposure Controls:

Follow good industrial workplace practices; do not eat, drink or smoke while handling; wash hands before breaks and at end of workshift; follow recommendations in this SDS.

8.2.1 Appropriate engineering controls

Ensure adequate ventilation through local exhaust.

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Use safety glasses with side shields. Refer to OSHA Standard 29CFR1910.133 and European Standard EN166.

8.2.2.2 Skin protection

Wear impervious clothing as necessary to protect against product contact. Necessity for boots, apron, face shield, etc. will be dependent on any hazards presented in the work process. Refer to CFR1910.132 and CFR1910.136 for OSHA approved standards on protective clothing and footwear.

8.2.2.3 Respiratory protection

Although no exposure limits have been established, respiratory protection may be of use if any respiratory irritation or discomfort is noted; if the material is processed at elevated temperatures without adequate ventilation, it may be necessary to wear an air-purifying respirator with organic vapor cartridge; respirator use should follow the guidelines of an established respiratory protection program in compliance with 29CFR1910.134.

8.2.2.4 Hand protection

Wear nitrile rubber, nitrile, neoprene, PVC or other suitable impervious gloves; refer to European Standard EN374. Gloves selected must have a breakthrough rating appropriate for the work shift (>480 minutes).

Other Protective Equipment: The type and degree of personal protective equipment appropriate will depend on the specific work operation. Eye wash stations and emergency showers should be available. Inspect and replace personal protective equipment at regular intervals; use professional care in their selection, use and care

8.3 Environmental exposure controls

Observe all precautions to prevent contamination of soil and waterways.

Section 9 - Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

9.1.1 General information:

Appearance: Viscous liquid

Color: Brown

Type of Odor: Ammoniacal

Odor Threshold: No data available

9.1.2 Important health, safety and environmental information:

Initial Boiling Point: No data

Solidification Point: No data

Flammability Classification: Combustible III B

Flash Point: >200 °C (>392 °F) (oc)

Autoignition Temperature: Not determined

Decomposition Temperature: Not determined

Flammability Limits: No data

Vapor Pressure: <0.01 mm Hg @ 20 °C

Vapor Density (Air=1): >1

Evaporation Rate (BuAc=1): <1

Octanol/Water Partition Coefficient (log P_{ow}): Not determined

Specific Gravity: 0.95

Bulk Density: No data

Water Solubility: Insoluble

pH: Alkaline

Viscosity: 200-500 cP @ 25 °C

Explosive Properties: Not explosive

Oxidizing Properties: Not applicable

Molecular Formula: No data

Section 10 - Stability and Reactivity

10.1 Stability and Reactivity

10.1 Reactivity

No dangerous reaction is known under normal use and storage conditions.

10.2 Stability

Stable under normal use and storage conditions.

10.3 Possibility of hazardous reactions

Mixtures with strongly acidic or strongly alkaline materials may produce an exothermic reaction.

10.4 Conditions to avoid

Avoid elevated temperatures and sources of ignition.

10.5 Incompatible materials

Strong acids, strong oxidizing agents, strong reducing agents, acid chlorides, acid anhydrides, hypochlorites.

10.6 Hazardous decomposition products

Thermal decomposition will generate carbon monoxide, carbon dioxide and nitrogen oxides, ammonia, nitric acid.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Acute Oral Toxicity: LD50(rat): 2000-5000 mg/kg

Acute Dermal Toxicity: LD50(rabbit): No data

Acute Inhalation Toxicity: No data

Skin Corrosion/Irritation: Rabbit/skin: Mild irritation

Serious Eye Damage/Irritation: Rabbit/eye: Irritation

Skin Sensitization (guinea pig): Not sensitizing

Mutagenicity: Not classified as mutagenic

Carcinogenicity: Not classified as carcinogenic. Not listed by OSHA/NTP/IARC.

Reproductive Toxicity: Not classified as a reproductive toxicant

Specific Target Organ Toxicity - single exposure (STOT-se): Product not classified based on available data.

Specific Target Organ Toxicity - repeated exposure (STOT-re): Product not classified based on available data.

Aspiration Hazard: No data available

Potential Health Effects:

Skin Contact: May cause mild skin irritation.

Eye Contact: Causes eye irritation.

Ingestion: May be harmful if swallowed.

Inhalation: Exposure to vapors from heated product may cause irritation of the nose and throat.

Chronic Health Effects:

None reported

Additional Information: No data available

Section 12 - Ecological Information

12.1 Toxicity

12.1.1 Acute/prolonged toxicity to fish

No data available

12.1.2 Acute/prolonged toxicity to aquatic invertebrates

No data available

12.1.3 Acute/prolonged toxicity to aquatic plants

No data available

12.1.4 Toxicity to bacteria, to soil dwelling organisms and to terrestrial plants

No data available

12.1.5 Chronic toxicity to aquatic organisms

No data available

12.1.6 General effect

Not anticipated to be harmful to aquatic life.

12.2 Persistence and degradability

Not readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment (EC reg. 453/2010)

Product not classified as Persistent, Bioaccumulative and Toxic.

Product not classified as very Persistent or very Bioaccumulative.

12.6 German WGK classification

No data available

12.7 Other adverse effects

No other adverse effects are identified.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Disposal: Do not dump to ground, sewers or watercourses. Incinerate or otherwise dispose of in compliance with all applicable federal, state and local environmental control laws and regulations. Waste characterization according to RCRA guidelines and compliance with applicable laws are the responsibility solely of the waste generator.

Container Disposal: Containers should be drained of all residual product prior to disposal.

Section 14 - Transport Information

14.1 Shipping description

DOT: Not regulated as hazardous in transport

IMDG Proper Shipping Description: Not regulated as hazardous in transport

IATA: Not regulated as hazardous in transport

Section 15 - Regulatory Information

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

SARA Title III Section 311/312 (40CFR370): Acute health hazard

SARA Title III Section 313 (40CFR372): No reportable components

CERCLA Status (40CFR302): No reportable components

(Release of a hazardous substance into the environment in an amount that equals or exceeds its reportable quantity (RQ) requires notification to the National Response Center at 800-424-8802.)

RCRA Status (40CFR261): Not listed

OSHA/NTP/IARC Carcinogen Status: Not listed

TSCA Inventory Status: Reported/included

Canadian DSL Status: Reported/included

Canadian WHMIS Status: D2B

Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity:

None known to be in the product at levels requiring a warning.

REACH Annex XIV (SVHC)

No listed components

REACH Annex XVII (Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles)

No listed components

REACH Status (EC 1907/2006): This material has been registered, pre-registered or is otherwise exempted from registration under the Registration, Evaluation and Authorization of Chemical Substances.

Chemical safety assessment

Not available

Section 16 - Other Information

HMIS ratings:

Health:	1
Flammability:	1
Reactivity:	0

(Personal protective equipment selection is best assigned by the user after performing a hazard assessment on the product as it is to be used in the specific work process.)

Synonyms:

Resin component: Fatty acids, C₁₈ unsatd., dimers, reaction products with polyethylene-polyamines

National chemical inventories

All components of this product are listed on the following chemical substance inventories:

TSCA (USA)
DSL (Canada)
EINECS (Europe)
ENCS (Japan)
ECL (Korea)
AICS (Australia)
PICCS (Philippines)
IECSC (China)

Abbreviations

ACGIH American Conference of Governmental Industrial Hygienists
ADR International carriage of dangerous goods by Road
AICS Australian Inventory of Chemical Substances
AIHA American Industrial Hygiene Association
BfR Bundesinstitut für Risikobewertung recommendations for food contact materials
BCF Bioconcentration Factor
CERCLA Comprehensive Environmental Response, Compensation and Liability Act
CLP Classification, Labeling and Packaging regulation
DOT Department of Transportation
DSL Domestic Substances List

EINECS	European Inventory of Existing Chemical Substances
ECL	Existing Chemicals List (Korea)
ENCS	Existing and New Chemical Substances Inventory (Japan)
EN 689	Workplace atmospheres – Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy
ERG	Emergency Response Guide
GHS	Globally Harmonized System
HMIS	Hazardous Materials Information System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods
LD50	Lethal dose to 50% of test animal population
MAK	Maximale Arbeitsplatz Konzentration
NOAEL	No observable adverse effect level
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety & Health Administration
PBT	Persistent, Bioaccumulative and Toxic
vPvB	Very Persistent and Very Bioaccumulative
PEL	Permissible exposure limit
PICCS	Philippine Inventory of Commercial Chemical Substances
PNEC	Predicted No Effect Concentration
REACH	Registration, evaluation and authorization of chemical substances
RID	International carriage of dangerous goods by Rail
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
SVHC	Substance of Very High Concern
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
VOC	Volatile organic compound
WEEL	Workplace Environmental Exposure Level
WGK	Wassergefährdungsklasse (Water Hazard Class)
WHMIS	Workplace Hazardous Material Identification System

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