Appendix A

Safety Data Sheets for Priority Products Produced by the Submitter of This Abridged AA Report

Rhino Linings®

SAFETY DATA SHEET

Part No.: ISO A-D
Released: June 23, 2015

PRODUCT NAME(S): ThermalGuard ISO, A Component

SECTION 1 – IDENTIFICATION

Supplier's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Product name: ThermalGuard ISO, Part A
Product Category: Polyurethane ISO Part A
Recommended use: For 2 component SPF

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 08 GHS 07

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity (Inhalation)	4	H332	Harmful if inhaled
Specific target organ toxicity-single exposure	3	H335	May cause respiratory irritation.
Respiratory sensitization	1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity-repeated exposure	1	H372	Causes damage to organs (Respiratory tract) through prolonged or repeated exposure if inhaled.
Skin irritation	2	H315	Causes skin irritation.
Skin sensitization	1	H317	May an cause allergic skin reaction.
Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P261	Avoid breathing dust, mist, gas, vapors or spray.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and 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 work area.
	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P285	In case of inadequate ventilation, wear respiratory protection. See section 8.
Response:	P314	Get medical attention if you feel unwell.
	P333 + P313	If skin irritation or rash occurs: get medical attention.
	P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
	P304 + P341	IF INHALED: If breathing is difficult, Remove victim to fresh air and keep at rest in a position comfortable for breathing.

	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.
	P337 + P313	If eye irritation persists: Get medical attention.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P342 + P315	If experiencing respiratory symptoms: Call a doctor or emergency medical facility (911).
Storage:	P405 + P403 + P233	Store locked up. Store in well-ventilated place. Keep container tightly closed.
Disposal:	P501	Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration,
Polymeric Diphenylmethane Diisocyanate (pMDI)	9016-87-9	N/A	50 - 60%
4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8	202-966-0	35 - 45%
2,4'-Diphenylmethane Diisocyanate (MDI)	5873-54-1	227-534-9	1-5%
2,2'-Diphenylmethane Diisocyanate	2536-05-2	219-799-4	0.1-1%

SECTION 4 – FIRST-AID MEASURES

Most Important Symptom(s)/Effect(s)

Acute: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Description of First Aid measures:

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention.

Skin Contact: Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops.

Inhalation: Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.

Ingestion: Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

Notes to Physician

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical, Carbon dioxide (CO2), Foam, water spray for large fires.

Unsuitable Extinguishing Media: High volume water jet

Fire Fighting Procedure:

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Hazardous Decomposition Products:

By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds.

Unusual Fire/Explosion Hazards:

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO2 formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures:

Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management. Call CHEMTREC at 1-800-424-9300 for assistance and advice.

Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc…). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface.

Decontaminate the spill surface area using a neutralization solution (see list of solutions on the SDS); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container. Check for residual surface contamination using Swype® test kits, available from Colorimetric Laboratories, Inc. (CLI) at 847-803-3737. If the Swype® test pad demonstrates that isocyanate remains on the surface (red color on pad), repeat applications of neutralization solution, with scrubbing, followed by absorbent until the surface is decontaminated (no color change on Swype® pad). Apply lid loosely to metal waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralization process). With the lid still loosely in place, move the container to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, state and local regulations.

Additional Spill Procedures/Neutralization:

Products or product mixtures that have been shown to be effective neutralization solutions for decontaminating surfaces, tools, or equipment that have been in contact with an isocyanate includes:
Products available through industrial suppliers:

· Spartan Chemical Company: 1-800-537-8990:
  - o Spartan® ShineLine Emulsifier Plus
  - o Spartan® SC-200 Heavy Duty Cleaner
· Colorimetric Laboratories, Inc. (CLI): 1-847-803-3737
  - o Isocyanate Decontamination Solution
· A mixture of 80% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10).
· Mix equal amounts of the following:
  - o Mineral spirits (80%), VM&P Naphtha (15%), and household detergent (5%), and
  - o A 50-50 mixture of monoethanolamine and water

  In a separate container, blend the two solutions in a 1:1 ratio by volume. Immediately prior to applying this blended neutralization solution onto the contaminated surface area, mix or agitate the container to help ensure uniform mixing of the ingredients.

If the above products are not available, the following products can be obtained through retail outlets:

· ZEP® Commercial Heavy-Duty Floor Stripper
· Greased Lightning® Super Strength Cleaner and Degreaser
· EASY OFF® Grill and Oven Cleaner or EASY OFF® Fume Free Oven Cleaner
· A mixture of 50% Simple Green® Pro HD Heavy-Duty Cleaner and 50% household ammonia
· A mixture of 90% Fantastic® Heavy Duty All Purpose Cleaner and 10% household ammonia.

Note: Always wear proper PPE when cleaning up an isocyanate spill and using a neutralization solution. It may take two or more applications of the neutralization solution to decontaminate the surface. Check for residual surface contamination using a surface wipe method such as the CLI Swype® pad.

SECTION 7 – HANDLING AND STORAGE

Handling/Storage Precautions:

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

Storage Period: 6 Months: after receipt of material by customer

Storage Temperature:

Minimum:	10 °C (50 °F)
Maximum:	30 °C (86 °F)

Storage Conditions:

Store separate from food products.

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Substances to Avoid:

Water, Amines, Strong bases, Alcohols, Copper alloys

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components: USA

Components	CAS #	OSHA PEL (Table Z-1 Limits for Air Contaminants)	ACGIH TWA	NIOSH
4,4'-Diphenylmethane Diisocyanate	101-68-8	Ceiling Limit Value: 0.02 ppm, 0.2 mg/m^3	TLV: 0.005 ppm	No data

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

Industrial Hygiene/Ventilation Measures:

Local exhaust should be used to maintain levels below the TLV whenever MDI is heated, sprayed, or aerosolized. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program. NIOSH, OSHA, Bayer, and others have developed sampling and analytical methods. Bayer methods can be made available, upon request.

Respiratory Protection:

Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then (a) the cartridge must be equipped with an end-of-service life indicator (ESLI) certified by NIOSH, or(b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

Hand Protection:

Gloves should be worn., Nitrile rubber showed excellent resistance., Butyl rubber, neoprene and PVC are also effective.

Eye Protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

Skin Protection:

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact., Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction., This data reinforces the need to prevent direct skin contact with isocyanates.

Medical Surveillance:

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted. Refer to the Bayer pamphlet (Medical Surveillance Program for Isocyanate Workers) for additional guidance.

Additional Protective Measures:

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown Liquid
Odor:	Musty
Odor threshold:	No data available.
pH:	No data available.
Boiling point:	Approximately 208°C (406.4°F)
Flash point:	198°C (388.4°F) (ASTM D 93)
Evaporation rate:	No data available.
Upper/ lower flammability or explosive limits:	No data available.
Vapor pressure:	<0.0001 mmHg @25°C (77°F)
Vapor density:	No data available.
Density:	1.234 g/cm^3 @ 25°C (77°F)
Specific Gravity:	1.24 @ 25°C (77°F)
Solubility (water):	Insoluble-Reacts slowly with water to liberate CO_2 gas
Partition coefficient n-octanol/water:	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	Not established.
Dynamic Viscosity:	150-250 mPa.s @ 25°C (77°F)
Kinematic Viscosity:	No data available.
Bulk Density:	1,234 kg/m^3
Self Ignition:	Not applicable.

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Hazardous Reactions:

Contact with moisture, other materials that react with isocyanates, or temperatures above 350°F (177°C), may cause Polymerization.

Stability:

Stable under normal conditions of use and storage.

Materials to Avoid:
Water, Amines, Strong bases, Alcohols, Copper alloys

Hazardous Decomposition Products:
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds.

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:
Skin Contact
Inhalation
Eye Contact

Health Effects and Symptoms:

Acute: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Chronic: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to isocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to isocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to isocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent., Prolonged contact with skin can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

Prolonged vapor contact with the eyes may cause conjunctivitis.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Toxicity Data for MONDUR MR LIGHT

Toxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

Acute Oral Toxicity:
LD50: > 2000 mg/kg (rat, male/female)

Acute Inhalation Toxicity:
LC50: 0.49 mg/l, 490, 4 h (rat)
The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:
LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

Skin Irritation:
rabbit, Slightly irritating

Repeated Dose Toxicity:
90 Days, inhalation: NOAEL: 1 mg/m3, (rat, Male/Female, 6 hrs/day 5 days/week)
Irritation to lungs and nasal cavity.

2 years, inhalation: NOAEL: 0.2, (rat, Male/Female, 6 hrs/day 5 days/week)
Irritation to lungs and nasal cavity.

Mutagenicity:
Genetic Toxicity in Vitro:
Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity:
rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week,
Polymeric MDI has been classified as IARC Group 3 ("Not classifiable as to its carcinogenicity to humans") (1999) indicating there is inadequate evidence available to describe the carcinogenic potential. Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies in rodents, pMDI produced tumors only at the highest exposure level of 6 mg/m3. This exposure level is significantly above the TLV for MDI (0.051 mg/m3). Based on the weight of the evidence, a determination of not classified for carcinogenicity is justified.

Developmental Toxicity/Teratogenicity:
rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL (teratogenicity): 12 mg/m3, NOAEL (maternal): 4 mg/m3
No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

Toxicity Data for Polymeric Diphenylmethane Diisocyanate (pMDI)

Toxicity Note:
See data above for polymeric MDI.

Toxicity Data for 4,4'-Diphenylmethane Diisocyanate (MDI)

Acute Oral Toxicity:
LD50: > 7616 mg/kg (rat) (OECD Test Guideline 401)

Acute Inhalation Toxicity:
LC50: 0.368 mg/l, 4 h (rat, male) (OECD Test Guideline 403)
The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:
LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)
Studies of a comparable product.

Skin Irritation:
rabbit, Draize Test, Slightly irritating

Human, irritating

Sensitization:
Skin sensitization (local lymph node assay (LLNA)):: positive (mouse, OECD Test Guideline 429)

Respiratory sensitization: positive (guinea pig)

Repeated Dose Toxicity:
90 Days, inhalation: NOAEL: 0.3 mg/m3, (rat, Male/Female, 18 hrs/day, 5 days/week)
Irritation to lungs and nasal cavity.

(Human)
Irritation to lungs and nasal cavity.

Mutagenicity:
Genetic Toxicity in Vitro:
Ames: (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:
Micronucleus Assay: (mouse)
negative

Micronucleus test: negative (rat, male, Inhalative (exposure period: 3x1h/day over 3 weeks))
negative

Carcinogenicity:
rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week, negative

Other Relevant Toxicity Information
May cause irritation of respiratory tract.

Toxicity Data for 2,4'-Diphenylmethane Diisocyanate (MDI)

Toxicity Note:
See data above for polymeric MDI.

Toxicity Data for 2,2'-Diphenylmethane Diisocyanate

Toxicity Note:
See data above for polymeric MDI.

Carcinogenicity:
No carcinogenic substances as defined by IARC, NTP and/or OSHA

SECTION 12 – ECOLOGICAL INFORMATION

Ecological Data for MONDUR MR LIGHT

Ecotoxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

Biodegradation:
0 %, Exposure time: 28 d, i.e. not degradable.

Bioaccumulation:
Oncorhynchus mykiss (rainbow trout), Exposure time: 112 d, < 1 BCF
Does not bioaccumulate.

Acute and Prolonged Toxicity to Fish:
LC0: > 1,000 mg/l (Danio rerio (zebra fish), 96 h)
LC0: > 3,000 mg/l (Oryzias latipes (Orange-red killifish), 96 h)

Acute Toxicity to Aquatic Invertebrates:
EC50: > 1,000 mg/l (Water flea (Daphnia magna), 24 h)

Toxicity to Aquatic Plants:
NOEC: 1,640 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus),72 h)

Toxicity to Microorganisms:
EC50: > 100 mg/l, (activated sludge, 3 h)

Ecological Data for Polymeric Diphenylmethane Diisocyanate (pMDI)

Additional Ecotoxicological Remarks
See data above for polymeric MDI.

Ecological Data for 4,4'-Diphenylmethane Diisocyanate (MDI)

Acute and Prolonged Toxicity to Fish:
LC50: > 500 mg/l (Zebra fish (Brachydanio rerio), 24 h)

Acute Toxicity to Aquatic Invertebrates:
EC50: > 500 mg/l (Water flea (Daphnia magna), 24 h)

Ecological Data for 2,4'-Diphenylmethane Diisocyanate (MDI)

Additional Ecotoxicological Remarks
See data above for polymeric MDI.

Ecological Data for 2,2'-Diphenylmethane Diisocyanate

Additional Ecotoxicological Remarks
See data above for polymeric MDI.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions:

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

SECTION 14 – TRANSPORT INFORMATION

GHS Signal Word: **DANGER!**

GHS Classification: **Acute Toxicity: Inhalation, Category 4 – Harmful if inhaled.**
Specific Target Organ Acute Toxicity –single exposure: Category 3 – May cause respiratory irritation.
Respiratory sensitization: Category 1- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific Target Organ Acute Toxicity –repeated exposure: Category 1– Causes damage to organs (Respiratory tract) through prolonged or repeated exposure if inhaled.
Skin irritation: Category 2- Causes skin irritation.
Skin sensitization: Category 1 - May an cause allergic skin reaction.
Eye irritation: Category 2B - Warning! Causes eye irritation

LAND TRANSPORT (US DOT): When in individual containers of less than the Product RQ, this material ships as non-regulated.

RSPA/DOT Regulated Components: 4,4'-Diphenylmethane Diisocyanate (MDI)

Reportable Quantity: 5040 kg (11111 lb)

Proper Shipping Name: Other regulated substances, liquid, n.o.s. (contains 4,4'-Diphenylmethane Diisocyanate (MDI))
Hazard Class or Division: 9
UN/NA Number: NA3082
Packaging Group: III
Hazard Label(s): Class 9

Sea transport (IMDG): Non-Regulated

Air transport (ICAO/IATA): Non-Regulated

Additional Transportation Information:

MARPOL/IBC
PRODUCT NAME: Diphenylmethane Diisocyanate
POLLUTION CATEGORY: Y
SHIP TYPE: 2
FLASH POINT: 390°F

SECTION 15 – REGULATORY INFORMATION

United States Federal Regulations

US. Toxic Substances Control Act:
Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:
4,4'-Diphenylmethane Diisocyanate (MDI) Reportable quantity: 5000 lbs

SARA Section 311/312 Hazard Categories:
Acute Health Hazard
Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:
Polymeric Diphenylmethane Diisocyanate (pMDI)
4,4'-Diphenylmethane Diisocyanate (MDI)

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

This product contains a trace (ppm) amount of phenyl isocyanate (CAS# 103-71-9) and monochlorobenzene (CAS# 108-90-7) as impurities.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight percent	Components	CAS-No.
50 - 60%	Polymeric Diphenylmethane Diisocyanate (pMDI)	9016-87-9
35 - 45%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8
1 - 5%	2,4'-Diphenylmethane Diisocyanate (MDI)	5873-54-1

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

Weight percent	Components	CAS-No.
50 - 60%	Polymeric Diphenylmethane Diisocyanate (pMDI)	9016-87-9
35 - 45%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered “DRC Conflict Free” as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

SECTION 16 – OTHER INFORMATION

NFPA rating: Health: 2 Fire: 1 Reactivity: 1 Special: 0
HMIS rating: Health: 2 Flammability: 1 Physical hazard: 1

Latest revision date: June 23, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

LEGEND

GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Rhino Linings®

SAFETY DATA SHEET

Part No.: DTCC25 B-D
Released: May 20, 2015

PRODUCT NAME(S): Duratite CC25, B Component

SECTION 1 – IDENTIFICATION

Supplier's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Product name: Duratite CC25, Part B
Product Category: Polyurethane Resin
Blend Recommended use: For 2 component SPF

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 05 GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be Harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration, %
Polyether Polyol	**52019-35-9**	N/A	7-13%
Amine Catalyst Blend	Trade Secret	N/A	3 - 12%
Ethylene Glycol	107-21-1	N/A	0.1 - 1.0%

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.

Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TWA	NIOSH
Ethylene Glycol	107-21-1	None	No data	50ppm ceiling
Amine Catalyst Blend	Trade Secret	None	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available.
pH:	10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >185°C (365°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.09 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	750 - 1300 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity:	Expected to be a low hazard for usual industrial or commercial handling by trained personnel.
Likely Routes of Exposure:	Skin contact. Eye contact.
Eye:	Causes serious eye damage.
Skin:	Causes skin irritation.
Ingestion:	Not an expected route of exposure. Expected to be a low ingestion hazard.
Inhalation:	Not an expected route of exposure. No adverse effects due to inhalation are expected.

Calculated overall chemical acute toxicity values for this formulation:

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
>5 mg/kg (dust and mist)	>2000 mg/kg	>2000 mg/kg

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation:	Causes skin irritation.
Serious Eye Damage/Irritation:	Causes serious eye damage.
Respiratory Sensitization:	Based on available data, this product is not expected to cause respiratory sensitization.
Skin Sensitization:	Based on available data, this product is not expected to cause skin sensitization.
Symptoms and Target Organs:	Causes severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
Chronic Health Effects:	No chronic health effects known.
Carcinogenicity:	This product is not classified as a carcinogen.

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
Ethylene Glycol	not listed	A4	not listed	not listed
2-Butoxyethanol	Yes	A3	not listed	3

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
1,4- Dioxane	Yes	A3	R	2B
Diethylene glycol	Yes	A3	not listed	3

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

OSHA (O) =Occupational Safety and Health Administration
Yes = Expected to be carcinogenic
not listed = Not expected to be carcinogenic

ACGIH (G) =American Conference of Governmental Industrial Hygienists
A1 =Confirmed human carcinogen
A2 =Suspected human carcinogen
A3 =Animal carcinogen
A4 =Not classifiable as a human carcinogen
A5 =Not suspected as a human carcinogen
not listed = Not expected to be carcinogenic

NTP (N) =National Toxicology Program
1 =Known to be a carcinogen
2 = Reasonably anticipated to be a carcinogen
not listed = Not expected to be carcinogenic

IARC (I) =International Agency for Research on Cancer
1 =Carcinogenic to humans
2A =Probably carcinogenic to humans
2B =Possibly carcinogenic to humans
3 =Not classifiable as to its carcinogenicity to humans
4 =Probably not carcinogenic to humans
not listed = Not expected to be carcinogenic

Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Reproductive Toxicity: Suspected of damaging the unborn child

Specific Target Organ Toxicity (STOT):

Single Exposure: Not classified as an STOT - Single Exposure.

Repeated Exposure: Not classified as an STOT - Repeated Exposure.

Aspiration Toxicity: Based on available data, this product is not expected to cause aspiration toxicity.

Other Information: Not available.

SECTION 12 – ECOLOGICAL INFORMATION

Do not discharge product into the environment.

Assessment of aquatic toxicity: Not tested, Do not discharge product into the environment.

Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.

Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

GHS Classification: **Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed**
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Skin Corrosion/Irritation, Category 1A-1C - Danger! Causes severe skin burns and eye damage
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated.
UN Number:
Hazard Class: **TDG Classification:**

LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated.

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated.

SECTION 15 – REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

US Federal Regulations:

U.S. OSHA (Occupational Safety and Health Administration) Specifically Regulated Substances (29 CFR 1910.1001-1050)

No component of this product is present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

SARA/CERCLA reporting requirements:

The following components of this product are subject to the CERCLA/SARA reporting requirements.

PRODUCT NAME(S): Duratite CC25, B Component

Material	SARA 302 (EHSs) TPQ	SARA 304 EHSs RQ	CERCLA RQ	SARA 313 listed	RCRA CODE	CAA 112(r) TQ	CAA TQ Ozone-Depleting Substances
Ethylene Glycol	Not listed	Not listed	5000	Listed	Not listed	Not listed	Not listed
1,4- Dioxane	Not listed	Not listed	100	Listed	U108	Not listed	Not listed
2-ethoxyethanol	Not listed	Not listed	1000	Listed	U359	Not listed	Not listed

The following components of this product are subject to state Right-to-Know reporting requirements.

Material	California Proposition 65	Massachusetts Right-to-Know	Minnesota Employee Right-to-Know	New Jersey Community Environmental Hazard Right-to-Know	New Jersey Right-to-Know Substance	Pennsylvania Right-to-Know	Rhode Island Right-to-Know
Ethylene Glycol	Not listed	Listed	Listed	Not listed	Listed	Listed	Listed
2-Butoxyethanol	Not listed	Listed	Not listed	Not listed	Not listed	Listed	Not listed
1,4- Dioxane	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Diethylene glycol	Not listed	Not listed	Listed	Not listed	Not listed	Listed	Not listed
2-ethoxyethanol	Listed	Listed	Listed	Not listed	Listed	Listed	Listed

Global Inventories:

Notification status:	
US - TSCA	Yes
Canada -DSL	Yes
Canada - NDSL	No
EU - EINECS	No
EU - ELINCS	No
EU - NLP	No
Australia - AICS	Yes
China - EICSC	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
Taiwan - NECI	Yes
New Zealand - NZIoC	Yes
Philippine - PICCS	No

EU - REACH Status:

A registration number is not available for substances in this mixture as the substances are exempted from registration, the annual tonnage does not require a registration or the registration is envisioned for a later registration deadline.

SECTION 16 – OTHER INFORMATION

NFPA rating: Health: 3 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 3 Flammability: 0 Physical hazard: 0

Latest revision date: May 20, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

LEGEND

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PEL	Permissible Exposure Limits
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MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
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IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
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IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
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HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Rhino Linings®

SAFETY DATA SHEET

Part No.: DTCC28 B-D
Released: May 20, 2015

PRODUCT NAME(S):Duratite CC28, B Component

SECTION 1 – IDENTIFICATION

Supplier's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

Product name: Duratite CC28, Part B
Product Category: Polyurethane Resin Blend
Recommended use: For 2 component SPF

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 05 GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be Harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration, %
Polyether Polyol	**52019-35-9**	N/A	7-13%
Amine Catalyst Blend	Trade Secret	N/A	3 - 12%
Ethylene Glycol	107-21-1	N/A	0.1 - 1.0%

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.

Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TWA	NIOSH
Ethylene Glycol	107-21-1	None	No data	50ppm ceiling
Amine Catalyst Blend	Trade Secret	None	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available.
pH:	10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >185°C (365°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.09 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	750 - 1300 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity:	Expected to be a low hazard for usual industrial or commercial handling by trained personnel.
Likely Routes of Exposure:	Skin contact. Eye contact.
Eye:	Causes serious eye damage.
Skin:	Causes skin irritation.
Ingestion:	Not an expected route of exposure. Expected to be a low ingestion hazard.
Inhalation:	Not an expected route of exposure. No adverse effects due to inhalation are expected.

Calculated overall chemical acute toxicity values for this formulation:

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
>5 mg/kg (dust and mist)	>2000 mg/kg	>2000 mg/kg

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation:	Causes skin irritation.
Serious Eye Damage/Irritation:	Causes serious eye damage.
Respiratory Sensitization:	Based on available data, this product is not expected to cause respiratory sensitization.
Skin Sensitization:	Based on available data, this product is not expected to cause skin sensitization.
Symptoms and Target Organs:	Causes severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
Chronic Health Effects:	No chronic health effects known.
Carcinogenicity:	This product is not classified as a carcinogen.

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
Ethylene Glycol	not listed	A4	not listed	not listed
2-Butoxyethanol	Yes	A3	not listed	3

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
1,4- Dioxane	Yes	A3	R	2B
Diethylene glycol	Yes	A3	not listed	3

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

OSHA (O) =Occupational Safety and Health Administration
Yes = Expected to be carcinogenic
not listed = Not expected to be carcinogenic

ACGIH (G) =American Conference of Governmental Industrial Hygienists
A1 =Confirmed human carcinogen
A2 =Suspected human carcinogen
A3 =Animal carcinogen
A4 =Not classifiable as a human carcinogen
A5 =Not suspected as a human carcinogen
not listed = Not expected to be carcinogenic

NTP (N) =National Toxicology Program
1 =Known to be a carcinogen
2 = Reasonably anticipated to be a carcinogen
not listed = Not expected to be carcinogenic

IARC (I) =International Agency for Research on Cancer
1 =Carcinogenic to humans
2A =Probably carcinogenic to humans
2B =Possibly carcinogenic to humans
3 =Not classifiable as to its carcinogenicity to humans
4 =Probably not carcinogenic to humans
not listed = Not expected to be carcinogenic

Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Reproductive Toxicity: Suspected of damaging the unborn child

Specific Target Organ Toxicity (STOT):

Single Exposure: Not classified as an STOT - Single Exposure.

Repeated Exposure: Not classified as an STOT - Repeated Exposure.

Aspiration Toxicity: Based on available data, this product is not expected to cause aspiration toxicity.

Other Information: Not available.

SECTION 12 – ECOLOGICAL INFORMATION

Do not discharge product into the environment.

Assessment of aquatic toxicity: Not tested, Do not discharge product into the environment.

Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.

Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

GHS Classification:

Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Skin Corrosion/Irritation, Category 1A-1C - Danger! Causes severe skin burns and eye damage
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated.
UN Number:
Hazard Class: **TDG Classification:**

LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated.

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated.

SECTION 15 – REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

US Federal Regulations:

U.S. OSHA (Occupational Safety and Health Administration) Specifically Regulated Substances (29 CFR 1910.1001-1050)

No component of this product is present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

SARA/CERCLA reporting requirements:

The following components of this product are subject to the CERCLA/SARA reporting requirements.

Material	SARA 302 (EHSs) TPQ	SARA 304 EHSs RQ	CERCLA RQ	SARA 313 listed	RCRA CODE	CAA 112(r) TQ	CAA TQ Ozone-Depleting Substances
Ethylene Glycol	Not listed	Not listed	5000	Listed	Not listed	Not listed	Not listed
1,4- Dioxane	Not listed	Not listed	100	Listed	U108	Not listed	Not listed
2-ethoxyethanol	Not listed	Not listed	1000	Listed	U359	Not listed	Not listed

The following components of this product are subject to state Right-to-Know reporting requirements.

Material	California Proposition 65	Massachusetts Right-to-Know	Minnesota Employee Right-to-Know	New Jersey Community Environmental Hazard Right-to-Know	New Jersey Right-to-Know Substance	Pennsylvania Right-to-Know	Rhode Island Right-to-Know
Ethylene Glycol	Not listed	Listed	Listed	Not listed	Listed	Listed	Listed
2-Butoxyethanol	Not listed	Listed	Not listed	Not listed	Not listed	Listed	Not listed
1,4- Dioxane	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Diethylene glycol	Not listed	Not listed	Listed	Not listed	Not listed	Listed	Not listed
2-ethoxyethanol	Listed	Listed	Listed	Not listed	Listed	Listed	Listed

Global Inventories:

Notification status:	
US - TSCA	Yes
Canada -DSL	Yes
Canada - NDSL	No
EU - EINECS	No
EU - ELINCS	No
EU - NLP	No
Australia - AICS	Yes
China - EICSC	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
Taiwan - NECI	Yes
New Zealand - NZIoC	Yes
Philippine - PICCS	No

EU - REACH Status:

A registration number is not available for substances in this mixture as the substances are exempted from registration, the annual tonnage does not require a registration or the registration is envisioned for a later registration deadline.

SECTION 16 – OTHER INFORMATION

NFPA rating: Health: 3 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 3 Flammability: 0 Physical hazard: 0

Latest revision date: May 20, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

LEGEND

GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Rhino Linings®

SAFETY DATA SHEET

Part No.: DTCC30 B-D
Released: May 20, 2015

PRODUCT NAME(S):Duratite CC30, B Component

SECTION 1 – IDENTIFICATION

Supplier's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Product name: Duratite CC30, Part B
Product Category: Polyurethane Resin Blend
Recommended use: For 2 component SPF

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 05 GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be Harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration, %
Polyether Polyol	**52019-35-9**	N/A	7-13%
Amine Catalyst Blend	Trade Secret	N/A	3 - 12%
Ethylene Glycol	107-21-1	N/A	0.1 - 1.0%

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.

Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TWA	NIOSH
Ethylene Glycol	107-21-1	None	No data	50ppm ceiling
Amine Catalyst Blend	Trade Secret	None	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available.
pH:	10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >185°C (365°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.09 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	750 - 1300 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity:	Expected to be a low hazard for usual industrial or commercial handling by trained personnel.
Likely Routes of Exposure:	Skin contact. Eye contact.
Eye:	Causes serious eye damage.
Skin:	Causes skin irritation.
Ingestion:	Not an expected route of exposure. Expected to be a low ingestion hazard.
Inhalation:	Not an expected route of exposure. No adverse effects due to inhalation are expected.

Calculated overall chemical acute toxicity values for this formulation:

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
>5 mg/kg (dust and mist)	>2000 mg/kg	>2000 mg/kg

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation:	Causes skin irritation.
Serious Eye Damage/Irritation:	Causes serious eye damage.
Respiratory Sensitization:	Based on available data, this product is not expected to cause respiratory sensitization.
Skin Sensitization:	Based on available data, this product is not expected to cause skin sensitization.
Symptoms and Target Organs:	Causes severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
Chronic Health Effects:	No chronic health effects known.
Carcinogenicity:	This product is not classified as a carcinogen.

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
Ethylene Glycol	not listed	A4	not listed	not listed
2-Butoxyethanol	Yes	A3	not listed	3

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
1,4- Dioxane	Yes	A3	R	2B
Diethylene glycol	Yes	A3	not listed	3

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

OSHA (O) =Occupational Safety and Health Administration
Yes = Expected to be carcinogenic
not listed = Not expected to be carcinogenic

ACGIH (G) =American Conference of Governmental Industrial Hygienists
A1 =Confirmed human carcinogen
A2 =Suspected human carcinogen
A3 =Animal carcinogen
A4 =Not classifiable as a human carcinogen
A5 =Not suspected as a human carcinogen
not listed = Not expected to be carcinogenic

NTP (N) =National Toxicology Program
1 =Known to be a carcinogen
2 = Reasonably anticipated to be a carcinogen
not listed = Not expected to be carcinogenic

IARC (I) =International Agency for Research on Cancer
1 =Carcinogenic to humans
2A =Probably carcinogenic to humans
2B =Possibly carcinogenic to humans
3 =Not classifiable as to its carcinogenicity to humans
4 =Probably not carcinogenic to humans
not listed = Not expected to be carcinogenic

Mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Reproductive Toxicity: Suspected of damaging the unborn child

Specific Target Organ Toxicity (STOT):

Single Exposure: Not classified as an STOT - Single Exposure.

Repeated Exposure: Not classified as an STOT - Repeated Exposure.

Aspiration Toxicity: Based on available data, this product is not expected to cause aspiration toxicity.

Other Information: Not available.

SECTION 12 – ECOLOGICAL INFORMATION

Do not discharge product into the environment.

Assessment of aquatic toxicity: Not tested, Do not discharge product into the environment.

Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.

Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

GHS Classification:

Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Skin Corrosion/Irritation, Category 1A-1C - Danger! Causes severe skin burns and eye damage
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated.
UN Number:
Hazard Class: **TDG Classification:**

LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated.

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated.

SECTION 15 – REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

US Federal Regulations:

U.S. OSHA (Occupational Safety and Health Administration) Specifically Regulated Substances (29 CFR 1910.1001-1050)

No component of this product is present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

SARA/CERCLA reporting requirements:

The following components of this product are subject to the CERCLA/SARA reporting requirements.

Material	SARA 302 (EHSs) TPQ	SARA 304 EHSs RQ	CERCLA RQ	SARA 313 listed	RCRA CODE	CAA 112(r) TQ	CAA TQ Ozone-Depleting Substances
Ethylene Glycol	Not listed	Not listed	5000	Listed	Not listed	Not listed	Not listed
1,4- Dioxane	Not listed	Not listed	100	Listed	U108	Not listed	Not listed
2-ethoxyethanol	Not listed	Not listed	1000	Listed	U359	Not listed	Not listed

The following components of this product are subject to state Right-to-Know reporting requirements.

Material	California Proposition 65	Massachusetts Right-to-Know	Minnesota Employee Right-to-Know	New Jersey Community Environmental Hazard Right-to-Know	New Jersey Right-to-Know Substance	Pennsylvania Right-to-Know	Rhode Island Right-to-Know
Ethylene Glycol	Not listed	Listed	Listed	Not listed	Listed	Listed	Listed
2-Butoxyethanol	Not listed	Listed	Not listed	Not listed	Not listed	Listed	Not listed
1,4- Dioxane	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Diethylene glycol	Not listed	Not listed	Listed	Not listed	Not listed	Listed	Not listed
2-ethoxyethanol	Listed	Listed	Listed	Not listed	Listed	Listed	Listed

Global Inventories:

Notification status:	
US - TSCA	Yes
Canada -DSL	Yes
Canada - NDSL	No
EU - EINECS	No
EU - ELINCS	No
EU - NLP	No
Australia - AICS	Yes
China - EICSC	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
Taiwan - NECI	Yes
New Zealand - NZIoC	Yes
Philippine - PICCS	No

EU - REACH Status:

A registration number is not available for substances in this mixture as the substances are exempted from registration, the annual tonnage does not require a registration or the registration is envisioned for a later registration deadline.

SECTION 16 – OTHER INFORMATION

NFPA rating: Health: 3 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 3 Flammability: 0 Physical hazard: 0

Latest revision date: May 20, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

LEGEND

GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Rhino Linings®

SAFETY DATA SHEET

Part No.: TGCC2 B-D

Date Released: May 16, 2017

PRODUCT NAME(S): ThermalGuard CC2, B Component

SECTION 1 – IDENTIFICATION

Manufacturer's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA 92131

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

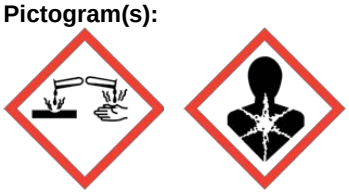
Product name: ThermalGuard CC2, Part B
Product Category: Polyurethane Resin Blend
Chemical Family: Recommended use: For 2 component SPF

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements:
Signal Word: DANGER

Pictogram(s):



GHS 05 GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration %
Polyether Polyol	52019-35-9	N/A	50 – 75%
Amine Catalyst Blend	Trade Secret	N/A	3 – 12%
2-Propanol, 1-chloro-, phosphate (3:1)	13674-84-5	N/A	<15
Ethylene Glycol	107-21-1	N/A	0.1 – 1.0%

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes.
Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.
Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TWA	NIOSH
Ethylene Glycol	107-21-1	None	No data	50ppm ceiling
Amine Catalyst Blend	Trade Secret	None	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:
Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH.

Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available
pH:	9-10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >200°C (392°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.2 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	750 - 900 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity: Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Likely Routes of Exposure: Skin contact. Eye contact.
Eye: Causes serious eye damage.
Skin: Causes skin irritation.
Ingestion: Not an expected route of exposure. Expected to be a low ingestion hazard.
Inhalation: Not an expected route of exposure. Not an expected route of exposure. No adverse effects due to inhalation are expected.

Calculated overall chemical acute toxicity values for this formulation:

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
>5 mg/kg (dust and mist)	>2000 mg/kg	>2000 mg/kg

DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation: Causes skin irritation.
Serious Eye Damage/Irritation: Causes serious eye damage.
Respiratory Sensitization: Based on available data, this product is not expected to cause respiratory sensitization.
Skin Sensitization: Based on available data, this product is not expected to cause skin sensitization.
Symptoms and Target Organs: Causes severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.
Chronic Health Effects: No chronic health effects known.
Carcinogenicity: This product is not classified as a carcinogen.

Material	OSHA(O)	ACGIH(G)	NTP(N)	IARC(I)
Ethylene Glycol	not listed	A4	not listed	not listed
2-Butoxyethanol	Yes	A3	not listed	3
1,4- Dioxane	Yes	A3	R	2B
Diethylene glycol	Yes	A3	not listed	3

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

OSHA (O) =Occupational Safety and Health Administration
Yes = Expected to be carcinogenic
not listed = Not expected to be carcinogenic

ACGIH (G) =American Conference of Governmental Industrial Hygienists
A1 =Confirmed human carcinogen
A2 =Suspected human carcinogen
A3 =Animal carcinogen
A4 =Not classifiable as a human carcinogen
A5 =Not suspected as a human carcinogen
not listed = Not expected to be carcinogenic

NTP (N) =National Toxicology Program
1 =Known to be a carcinogen
2 = Reasonably anticipated to be a carcinogen
not listed = Not expected to be carcinogenic

IARC (I) =International Agency for Research on Cancer
1 =Carcinogenic to humans
2A =Probably carcinogenic to humans
2B =Possibly carcinogenic to humans
3 =Not classifiable as to its carcinogenicity to humans
4 =Probably not carcinogenic to humans
not listed = Not expected to be carcinogenic

Mutagenicity:
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Reproductive Toxicity:
Suspected of damaging the unborn child

Specific Target Organ Toxicity (STOT):
Single Exposure: Not classified as an STOT - Single Exposure.
Repeated Exposure: Not classified as an STOT - Repeated Exposure.

Aspiration Toxicity:
Based on available data, this product is not expected to cause aspiration toxicity.

Other Information:
Not available.

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

SECTION 12 – ECOLOGICAL INFORMATION

Ethylene glycol (107-21-1)

LC50 fishes 1	**41000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)**
EC50 Daphnia 1	**46300 mg/l (Exposure time: 48 h - Species: Daphnia magna)**
LC50 fish 2	**14 - 18 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])**

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

LC50 fishes 1	**56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])**
EC50 Daphnia 1	**63 mg/l (Exposure time: 48 h - Species: Daphnia magna)**
EC50 other aquatic organisms 1	**45 mg/l (Exposure time: 72 h - Species: Desmodesmus subspicatus)**
LC50 fish 2	**180 mg/l (Exposure time: 96 h - Species: Leuciscus idus [static])**
EC50 other aquatic organisms 2	**4 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata)**

Do not discharge product into the environment.

Assessment of aquatic toxicity: Not tested. Do not discharge product into the environment.
Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.
Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.
Bioaccumulative potential: No significant accumulation in organisms is expected.

Ethylene glycol (107-21-1)
Log Pow -1.93

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)
BCF fish 1 1.9 - 4.6
Log Pow 2.59

Mobility in soil: Not expected.
Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

Land Transport (US DOT): Not regulated
Land Transport (Canadian TDG): Not regulated
Land Transport (European ADR/RID): Not regulated
Marine Transport (IMDG/IMO): Not regulated
Air Transport (ICAO/IATA): Not regulated

SECTION 15 – REGULATORY INFORMATION

U.S. Regulations:
U.S. OSHA (Occupational Safety and Health Administration) Specifically Regulated Substances (29 CFR 1910.1001-1050): No component of this product is present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
SARA/CERCLA reporting requirements:
The following components of this product are subject to the CERCLA/SARA reporting requirements.

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

Material	SARA 302 (EHSs) TPQ	SARA 304 EHSs RQ	CERCLA RQ	SARA 313 listed	CRA CODE	CAA 112(r) TQ	CAA TQ Ozone-Depleting Substances
Ethylene Glycol	Not listed	Not listed	5000	Listed	Not listed	Not listed	Not listed
1,4- Dioxane	Not listed	Not listed	100	Listed	U108	Not listed	Not listed
2-ethoxyethanol	Not listed	Not listed	1000	Listed	U359	Not listed	Not listed

The following components of this product are subject to state Right-to-Know reporting requirements.

Material	California Proposition 65	Massachusetts Right- to-Know	Minnesota Employee Right-to-Know	New Jersey Community Environmental Hazard Right-to-Know	New Jersey Right-to- Know Substance	Pennsylvania Right-to-Know	Rhode Island Right-to-Know
Ethylene Glycol	Not listed	Listed	Listed	Not listed	Listed	Listed	Listed
2-Butoxyethanol	Not listed	Listed	Not listed	Not listed	Not listed	Listed	Not listed
1,4- Dioxane	Listed	Listed	Listed	Listed	Listed	Listed	Listed
Diethylene glycol	Not listed	Not listed	Listed	Not listed	Not listed	Listed	Not listed
2-ethoxyethanol	Listed	Listed	Listed	Not listed	Listed	Listed	Listed

Global Inventories:

Notification status:	
US - TSCA	Yes
Canada -DSL	Yes
Canada - NDSL	No
EU - EINECS	No
EU - ELINCS	No
EU - NLP	No
Australia - AICS	Yes
China - EICSC	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
Taiwan - NECI	Yes
New Zealand - NZIoC	Yes
Philippine - PICCS	No

EU - REACH Status:

A registration number is not available for substances in this mixture as the substances are exempted from registration, the annual tonnage does not require a registration or the registration is envisioned for a later registration deadline.

HMIS rating: Health: 1 Flammability: 1 Physical Hazard: 1

SECTION 16 – OTHER INFORMATION

LEGEND KEY

Abbreviation	Meaning
GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
DNEL	Derived No Effect Level
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer

PRODUCT NAME(S): ThermalGuard CC2 Eco, B Component

NTP	National Toxicology Program
COD	Chemical Oxygen Demand
BOD	Biological Oxygen Demand
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
DSL	Domestic Substance List
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations

Latest revision date: May 16, 2017 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

Rhino Linings®

SAFETY DATA SHEET

Part No.: TGOC1 B-D

Released: May 20, 2015

PRODUCT NAME(S): ThermalGuard OC 1.0P, B Component

SECTION 1 – IDENTIFICATION

Supplier's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

Product name: ThermalGuard OC 1.0P, Part B
Product Category: Polyurethane Resin Blend
Recommended use: For 2 component SPF

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 05 GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be Harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration, %
Halogenated Phosphate	Trade Secret	N/A	15 - 35%
Amine Catalyst Blend	Trade Secret	N/A	3 - 10%

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.

Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training.
Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.
See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TWA	NIOSH
Halogenated Phosphate	Trade Secret	No data	No data	No data
Amine Catalyst Blend	Trade Secret	No data	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available.
pH:	10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >185°C (365°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.09 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	200 - 400 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Ingestion, Skin and Eye Contact, Inhalation.
Symptoms of exposure:
Acute toxicity:

Oral: Harmful if swallowed. May cause burns to mouth, throat and stomach. Adverse symptoms may include stomach pain.
Dermal: Causes severe burns. Adverse symptoms may include pain or irritation, redness, blistering.
Inhalation: May give off-gas, vapor or mist that is very irritating or corrosive to the respiratory system.

Skin corrosion / irritation:
Corrosive! Damages skin if not removed immediately. A more severe response may be expected if skin is abraded (scratched or cut).

Serious eye damage / eye irritation:
May cause serious eye damage. Adverse symptoms may include pain, watering, redness.

Aspiration hazard:
Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity:

Respiratory and Skin Sensitizer:
The chemical structure does not suggest a sensitizing effect. This material is not known or reported to be a skin or respiratory sensitizer.

Germ cell mutagenicity:
Developmental risk to humans is not expected from exposure to this product. Not known or reported to be mutagenic. Mutagenic effect was not found in various tests with mammalian cell culture and mammals. The substance was not mutagenic in bacteria. No experimental evidence is available for mutagenicity in vitro (Ames test negative).

Carcinogenicity:
This product does not contain ingredients known or reported to be carcinogenic by any reference IARC, NTP, EPA, OSHA, ACGIH.

Reproductive toxicity:
Risk to humans is not expected from exposure to this product. Not known or reported to cause reproductive toxicity.

Specific target organ toxicity, single exposure:
Not expected.

Specific target organ toxicity, repeated exposure:
Respiratory system, lungs

Medical conditions aggravated by overexposure:
Asthma, respiratory disorders if product is handled without adequate protection.

Toxicological Information:	Acute toxicity, LD50, Oral, Rat, 3600. MG/KG.
Results:	Behavioral: Somnolence (general depressed activity). Behavioral: Tremor. Lungs, Thorax, or Respiration:Other changes. - National Technical Information Service, Vol/p/yr: OTS05, 7713

Results:	Acute toxicity, LD50, Intravenous, Mouse, 56.00 MG/KG. Behavioral: Food intake (animal). Nutritional and Gross Metabolic:Weight loss or decreased weight gain. - U.S. Army Armament Research & Development Command, Chemical Systems Laboratory, NIOSH Exchange Chemicals., Aberdeen Proving Ground, Aberdeen Proving Ground, MD 21010, Vol/p/yr: NX#, 5768
Results:	Skin corrosion/irritation, Skin sensitization, Skin, Rabbit, 0.000 , Mild. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral: Tremor. Lungs, Thorax, or Respiration:Cyanosis.
Carcinogenicity/Other Information:	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. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Irritation or Corrosion	Skin - rabbit - Mild skin irritation - 24 h. Serious eye damage/eye irritation: Skin - rabbit - Corrosive. Eyes - rabbit - Severe eye irritation.

SECTION 12 – ECOLOGICAL INFORMATION

Do not discharge product into the environment.

Assessment of aquatic toxicity: Not tested, Do not discharge product into the environment.

Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.

Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

GHS Classification:

Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Skin Corrosion/Irritation, Category 1A-1C - Danger! Causes severe skin burns and eye damage
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated.
UN Number:
Hazard Class: **TDG Classification:**

LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Not dangerous goods.
UN Number:
Hazard Class:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated.

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated.

SECTION 15 – REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S.301 (EHS)	S. 304 RQ	S. 313 (TRI)

Trade Secret	Halogenated Phosphate	No	No	No
Trade Secret	Amine Catalyst	No	No	No

CAS #	Hazardous Components	Other US EPA or State Lists
Trade Secret	Halogenated Phosphate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8D TERM; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: No; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: No
Trade Secret	Amine Catalyst	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: Yes

CAS #	Hazardous Components	International Regulatory Lists
Trade Secret	Halogenated Phosphate	Canadian DSL: YES; Canadian NDSL: NO
Trade Secret	Amine Catalyst	Canadian DSL: YES; Canadian NDSL: NO

Other Regulatory Information: This product contains no chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 40 CFR part 372.

European Union Regulations: All ingredients of this product are listed or exempted.
Symbol – none required.

International Regulations/Inventories:

Australia (AICS): All components are listed or exempted.
China (IECSC): All components are listed or exempted.
Japan: All components are listed or exempted.
Korea: All components are listed or exempted.
Malaysia (EHS Register): Not determined.
New Zealand (NZIoC): All components are listed or exempted.
Philippines (PICCS): All components are listed or exempted.
Brazil Regulations: Classification system Norma ABNT-NBR 14725-2:2012

PRODUCT NAME(S): ThermalGuard OC 1.0P, B Component

SECTION 16 – OTHER INFORMATION

NFPA rating: Health: 1 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 1 Flammability: 0 Physical hazard: 0

Latest revision date: May 20, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.

LEGEND

GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Rhino Linings

SAFETY DATA SHEET *Part No.: TGOC5 B-D*

Released: May 20, 2015

PRODUCT NAME(S): ThermalGuard OC 0.5P, B Component

SECTION 1 – IDENTIFICATION

Manufacturer's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA 92131

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

Product name: ThermalGuard OC 0.5P, Part B
Product Category: Polyurethane Resin Blend
Recommended use: For 2 component SPF

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:** DANGER

Pictogram(s):

GHS 05

GHS 08

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be Harmful in contact with skin
Skin corrosion / irritation	1A-1C	H314	Causes severe skin burns and eye damage.
Serious eye damage / Eye irritation	2B	H320	Causes eye irritation.

Precautionary Statements:

Prevention:	P280	Wear protective gloves/ protective clothing / eye protection/ face protection.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P270	Do not eat, drink, and smoke when using this product.
	P260	Do not breathe mist, vapors, spray.
	P273	Avoid release to the environment.
Response:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P352	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P314	Get medical advice/attention if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
Storage:	P405	Store locked up.
Disposal:	P501	Dispose of contents/container to hazardous or special waste collection point.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EINECS #	Concentration, %
Halogenated Phosphate	Trade Secret	N/A	15 – 35%
Amine Catalyst Blend	Trade Secret	N/A	3 – 10%

PRODUCT NAME(S): ThermalGuard OC 0.5P, B Component

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or dermatologist. Wash material off of the skin with plenty of soap and water for at least 15 minutes.
Remove contaminated clothing and shoes immediately and wash them before reuse.

Eye: Immediate medical attention required. Call a poison center or physician. Chemical burns must be treated promptly by a physician or ophthalmologist.
Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury.

Ingestion: Immediate medical attention required. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms/effects, acute and delayed:
See Section 11.

General advice for First Aid responders:
No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. Show this SDS to physician.

Note to physician: Antidote: Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 24 hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.

Unsuitable extinguishing media: Direct water stream may cause frothing, splattering of burning material and spreading of fire.

Specific hazards arising from the chemical: Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: Carbon dioxide, Carbon monoxide, nitrogen oxides, lower molecular weight organic molecules.

Special Protective Equipment and Precautions for fire-fighters: Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training.

Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material; spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sawdust, sand, earth, vermiculite or diatomaceous earth). After approximately one hour, transfer into properly labeled chemical waste containers. Cover container, but do not seal, and remove from work area. Keep in a well ventilated area. Wash the spill site with soap and water.
For major spills: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Do not reseal if contamination is suspected.
Use adequate ventilation to keep airborne levels below the exposure limits. Do not breathe vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities: Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Storage stability: Stable under normal conditions.
Storage temperature: 60 - 90°F (16 – 32°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components:
USA

Components	CAS #	OSHA PEL	ACGIH TLV	NIOSH
Halogenated Phosphate	Trade Secret	No data	No data	No data
Amine Catalyst Blend	Trade Secret	No data	TLV: 0.05 ppm STEL: 0.15 ppm	No data

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:
Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Emergency eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber Liquid
Odor:	Ammonia-like
Odor threshold:	Not available.
pH:	10
Melting point/ freezing point:	< - 30°C (<-22°F) becomes highly viscous at low temperatures
Initial boiling point and boiling range:	Decomposed before boiling
Flash point:	Closed cup: >185°C (365°F)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.09 @ 25°C (77°F)
Solubility (water):	partially soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>200°C (392°F)
Decomposition temperature:	>200°C (392°F)
Viscosity:	200 - 400 cP @ 25°C (77°F)

*Where data are not known for mixture, they are stated for components, if available.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity:
Hazardous Polymerization: Product will not undergo hazardous polymerization.
Corrosion to metals: Corrosive effects to metal are not anticipated.
Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.
Formation of flammable gases: Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with isocyanates; the reaction will generate heat.
Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks. Avoid mist formation.

Incompatible materials: Strong oxidizing agents. Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon dioxide, carbon monoxide, alcohols, ethers, ketones, hydrocarbons, polymer fragments.

PRODUCT NAME(S): ThermalGuard OC 0.5P, B Component

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Ingestion, Skin and Eye Contact, Inhalation.

Symptoms of exposure:

Acute toxicity:

Oral: Harmful if swallowed. May cause burns to mouth, throat and stomach. Adverse symptoms may include stomach pain.

Dermal: Causes severe burns. Adverse symptoms may include pain or irritation, redness, blistering.

Inhalation: May give off-gas, vapor or mist that is very irritating or corrosive to the respiratory system.

Skin corrosion / irritation:

Corrosive! Damages skin if not removed immediately. A more severe response may be expected if skin is abraded (scratched or cut).

Serious eye damage / eye irritation:

May cause serious eye damage. Adverse symptoms may include pain, watering, redness.

Aspiration hazard:

Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity:

Respiratory and Skin Sensitizer:

The chemical structure does not suggest a sensitizing effect. This material is not known or reported to be a skin or respiratory sensitizer.

Germ cell mutagenicity:

Developmental risk to humans is not expected from exposure to this product. Not known or reported to be mutagenic. Mutagenic effect was not found in various tests with mammalian cell culture and mammals. The substance was not mutagenic in bacteria. No experimental evidence is available for mutagenicity in vitro (Ames test negative).

Carcinogenicity:

This product does not contain ingredients known or reported to be carcinogenic by any reference IARC, NTP, EPA, OSHA, ACGIH.

Reproductive toxicity:

Risk to humans is not expected from exposure to this product. Not known or reported to cause reproductive toxicity.

Specific target organ toxicity, single exposure:

Not expected.

Specific target organ toxicity, repeated exposure:

Respiratory system, lungs

Medical conditions aggravated by overexposure:

Asthma, respiratory disorders if product is handled without adequate protection.

Toxicity test results:

Acute toxicity, LD50, Oral, Rat, 3600. MG/KG.
Results: Behavioral: Somnolence (general depressed activity).
Behavioral: Tremor.
Lungs, Thorax, or Respiration: Other changes.
- National Technical Information Service, Vol/p/yr: OTS05, 7713

Acute toxicity, LD50, Intravenous, Mouse, 56.00 MG/KG.
Results: Behavioral: Food intake (animal).
Nutritional and Gross Metabolic: Weight loss or decreased weight gain.
- U.S. Army Armament Research & Development Command, Chemical Systems Laboratory, NIOSH Exchange Chemicals., Aberdeen Proving Ground, Aberdeen Proving Ground, MD 21010, Vol/p/yr: NX#, 5768

Skin corrosion/irritation, Skin sensitization, Skin, Rabbit, 0.000 , Mild.
Results: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye:Lacrimation.
Behavioral: Tremor.
Lungs, Thorax, or Respiration: Cyanosis.

Irritation or Corrosion — Skin - rabbit - Mild skin irritation - 24 h.
Serious eye damage/eye irritation:
Skin - rabbit - Corrosive.
Eyes - rabbit - Severe eye irritation.

PRODUCT NAME(S): ThermalGuard OC 0.5P, B Component

SECTION 12 – ECOLOGICAL INFORMATION

Assessment of aquatic toxicity: Not tested. Do not discharge product into the environment.
Assessment of terrestrial toxicity: Study not necessary due to exposure considerations.
Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.
Bioaccumulative potential: No significant accumulation in organisms is expected.
Mobility in soil: Not expected.
Other adverse effects: No known significant effects or critical hazards.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation.

This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

Land Transport (US DOT): Not Regulated.
Land Transport (Canadian TDG): Not Regulated.
Land Transport (European ADR/RID): Not dangerous goods.
Marine Transport (IMDG/IMO): Not Regulated.
Air Transport (ICAO/IATA): Not Regulated.

SECTION 15 – REGULATORY INFORMATION

NFPA rating: Health: 1 Fire: 0 Reactivity: 0 Special: 0
HMIS rating: Health: 1 Flammability: 0 Physical hazard: 0

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S.301 (EHS)	S. 304 RQ	S. 313 (TRI)
Trade Secret	Halogenated Phosphate	No	No	No
Trade Secret	Amine Catalyst	No	No	No

CAS #	Hazardous Components	Other US EPA or State Lists
Trade Secret	Halogenated Phosphate	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8D TERM; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: No; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: No
Trade Secret	Amine Catalyst	CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes -Inventory; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: Yes

CAS #	Hazardous Components	International Regulatory Lists
Trade Secret	Halogenated Phosphate	Canadian DSL: YES; Canadian NDSL: NO
Trade Secret	Amine Catalyst	Canadian DSL: YES; Canadian NDSL: NO

PRODUCT NAME(S): ThermalGuard OC 0.5P, B Component

Other Regulatory Information: This product contains no chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 40CFR part 372.

European Union Regulations: All ingredients of this product are listed or exempted.
Symbol – none required.

International Regulations/Inventories:
Australia (AICS): All components are listed or exempted.
China (IECSC): All components are listed or exempted.
Japan: All components are listed or exempted.
Korea: All components are listed or exempted.
Malaysia (EHS Register): Not determined.
New Zealand (NZIoC): All components are listed or exempted.
Philippines (PICCS): All components are listed or exempted.
Brazil Regulations: Classification system Norma ABNT-NBR 14725-2:2012

SECTION 16 – OTHER INFORMATION

LEGEND

GHS	Globally harmonized System
CAS	Chemical Abstracts Services
EPA	Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute of Occupational Safety and Health
PEL	Permissible Exposure Limits
TLV	Threshold Limit Value
REL	Recommended Exposure Limit
TWA	Time-Weighted Average
STEL	Short-term exposure limit
OES	Occupational exposure standard
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
TRGS	Technische Regeln fur Gefahrstoffe (regulatory limits)
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
DOT	Department of Transportation
IMDG	International maritime dangerous goods code
IATA, ICAO	International Air Transport Association, International Civil Aviation Organization
EPCRA	Emergency Planning and Community Right-to-Know Act
SARA	State Authorization Reciprocity Agreements
WHMIS	Workplace Hazardous Materials Information System
TDG	Transport of Dangerous Goods
HCS	Hazard Communication Standard
CEPA	Center for European Policy Agreements
EINECS	European Inventory of Existing Commercial Chemical Substances
CPR	Controlled Products Regulations
PACs	Polycyclic Aromatic Compounds
PAH	Polycyclic Aromatic Hydrocarbon Content
SPF	Spray Polyurethane Foam

Latest revision date: May 20, 2015 – Preparation of SDS in accordance to the GHS requirements
Date of the previous revision:

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.