



Rhino TUFF STUFF[®]

Technical Data Sheet

Part A - Isocyanate

Part B - Resin

Date Issued: Dec 2003

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PRODUCT TYPE

Elastomeric polyurethane. 100% solids (no VOCs, no solvents)
(Variations: can be pigmented)

GENERAL PROPERTIES:

Rhino TUFF STUFF is a two-component, 100% solids (no VOCs, no solvents), exothermic, rapid curing, elastomeric polyurethane lining system.

- Lining thickness varies based on application typically minimum of 3mm up to unlimited thickness
- Excellent abrasion resistance
- Excellent impact resistance
- Excellent casting material
- Very good slip resistance
- Good noise reduction
- Excellent weather resistance
- Excellent corrosion resistance
- Good chemical resistance

RECOMMENDED USES

- Excellent protective lining for abrasion, impact and corrosion resistance.
- Spray-on application creates a monolithic seamless lining, which conforms to any shape and size.
- Elastomeric properties allow for application to surface subject to: vibration, expansion, contraction, movement, flexing, abrasion and impact.
- Bonds virtually to all substrates of any dimension, including all metals, concrete, wood and fibreglass.
- Reduces noise from vibration and impact.
- Stable from -40°C to 79.4°C
- Withstands light vehicular and foot traffic.
- Casting material for material handling equipment such as Chutes, hoppers, rollers, etc.
- Aggressive slip resistance performance can be achieved with aggregate integrated into lining.
- Waterproof Membrane, AS/NZ 4858:2004.
- Potable Water Membrane, AS/NZ 4020:2002.

NOT RECOMMENDED FOR:

- Sustained temperatures below -40°C or above 79.4°C .
- Application to high density polyethylene or thermo plastics.

CHEMICAL RESISTANCE:

Good resistance to many routine chemicals such as: weak acids, weak alkalies, oils and cleaning agents. For specific applications and/or information, consult with Rhino Linings[®] representatives.

SUBSTRATES:

Metals, wood, concrete, brick, fibreglass and geotextiles.

VOLATILE ORGANIC CONTENT:

None. 100% solids. No solvents

DRY FILM THICKNESS RANGE (subject to application)

Varies based on application, typically used at a minimum of 3mm up to unlimited thickness.

Waterproof Coating Thickness: 2mm to unlimited.

Automotive Coating Thickness: Floor/Tailgate/Rail 4 to 6+ mm, Walls 2+ mm.

SHELF LIFE and CONTAINER SIZE:

Part A – Isocyanate: nine months, unopened.

75kg and 250kg Drums.

Part B – Resin: nine months, unopened.

62kg and 204kg Drums.

BASE MATERIAL COLOURS:

Isocyanate – yellow or light straw colour.

Resin – Opaque

COLOUR OPTIONS:

Eight (8) standard colours available. Custom colours available by special order to AS2700 Australian Standard Colour Chart.

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TYPICAL PHYSICAL PROPERTIES OF Rhino TUFF STUFF®

Hardness (Shore A)	88A±5	ASTM D-2240
Tensile Strength (psi)*	1300 – 1500	ASTM D-412
Elongation (%)	250 – 300	ASTM D-412
Elongation (%)	375 – 430	AS/NZ 4858:2004
Compressive Strength (psi)	800	ASTM D-695-96
Taber Abrasion Resistance (mg of loss/1000 cycles)		
CS17 Wheel: 1000 grams weight	10 – 15	ASTM D-4060
Tear Resistance (pli)* Die C	200 – 250	ASTM D-624
Ross Flex (% crack growth per 50,000 cycles)	0	ASTM FIA-308
Coefficient of Friction on Steel		
Static	0.85	ASTM D-1894-95
Kinetic	0.78	ASTM D-1894-95
Specific Gravity (grams/cc)	1.06 – 1.08	ASTM D-792
Water Absorption (%)	≤1.6	ASTM D-570
Dielectric Strength (volts/mil)	300	ASTM D-149
Volume Resistancy (ohm/inches)	6 x 10 (12)	ASTM D-257
Dielectric Constant (MHz)	5.4	ASTM D-150
Dissipation Factor (MHz)	0.058	ASTM D-150
Cathodic Disbonding	Pass	ASTM G-8

* Properties were checked of Rhino TUFF STUFF polyurethane lining 3.18 mm thick stock.

REACTIVITY: (Tested in cups, 161g combined @ 25 deg C)

Initiation 10-20 secs; Gel time 20-30 secs; Tack Free/Solid <60 secs; 95-99% cure 24 hours.

SAFETY PRECAUTIONS:

Health Considerations: consult Rhino Linings Material Safety Data Sheets.

The uncured components of Rhino Linings TUFF STUFF can cause irritation to the eyes, skin, mucous membranes and are harmful if swallowed. When handling, avoid contact with eyes and skin (especially open cuts). In case of contact, immediately wash off with plenty of water for at least fifteen (15) minutes. For eyes, obtain medical attention. Always wash hands before eating. Obtain immediate medical attention in case of ingestion.

Rhino TUFF STUFF contains isocyanates and may cause allergic skin or respiratory reactions. Do not use if you have chronic breathing problems (asthma) or if you have ever had reactions to isocyanates. When applying Rhino TUFF STUFF, avoid breathing harmful vapours. Fresh air-supplied standard painter's hood or full face respirator must be worn by all personnel entering the area where Rhino TUFF STUFF is being applied until all vapours have been exhausted. In case of extreme exposure or adverse reaction, remove affected personnel to fresh air immediately and obtain medical help.

Important: consult the Rhino Linings Material Safety Data Sheets.

Read and follow warning labels on all components. For professional use only. Follow cautions and handling guidelines in Rhino Linings Technical Manual. The information herein is believed to be reliable, but unknown risks may be present. All warranties of any kind, expressed or implied, including warranties of fitness for a particular purpose, are specifically disclaimed.

For your Protection:

The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Rhino Linings Australasia Pty Ltd. Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products made by Rhino Linings Pty Ltd will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors. Because of numerous factors affecting results, **Rhino Linings Australasia Pty Ltd makes no warranty of any kind, express or implied**, other than that the material conforms to its applicable current Standard Specifications. Rhino Linings Australasia Pty Ltd hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of Rhino Linings Australasia Pty Ltd for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.

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Rhino Linings Australasia Pty Ltd

501-505 Olsen Avenue, Molendinar Qld 4214 Australia

Ph: +61 7 5585 7000 ~ Fax: +61 7 5539 6399

Rhino Linings USA, Inc. ° Rhino Linings of Canada, Inc. ° Rhino Linings Latin America, ° Rhino Linings Europe