

3MS.003

Graphite-Based Adhesives



Summary

Overview

OVERVIEW

SAFETY

Resbond™ 931

Resbond™ 931C

Activator Binder 931T

TECHNICAL DATA

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.

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Final Advanced Materials is collaborating with Cotronics to offer highly effective adhesive products. They are manufactured using high purity technical materials to provide reliable bonds even at high temperature.

Areas of application:

- Research and development, electronics, metallurgical, industrial and nuclear applications, etc.

Applications:

- Bonding and repair of graphite or carbon parts
- Graphite coating

Advantages:

- Excellent stability at high temperature
- Superior mechanical strength
- Thermal shock resistance
- Resistance to molten metals
- Use in harsh environments, both reducing and oxidising
- Resistance to most solvents and chemical products
- Maximum operating temperature up to 3,000 °C under vacuum or neutral gas (Resbond™ 931)

Safety

Do not inhale the powders! Wear a mask when handling in large quantities.

Avoid all contact with the eyes or skin.

In the event of an accident, quickly clean skin and eyes with water and consult a doctor.

We will provide you with the material safety data sheets.

info@final-materials.com

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Graphite-Based Adhesives



Resbond™ 931

100 % Graphite Coating and Adhesive, 3,000 °C

The Resbond™ 931 adhesive is formulated with 99 % pure graphite. It can be used to bond graphite or carbon components.

The composition of the Resbond™ 931 product means that it requires specific packaging for the transportation of dangerous goods.

Properties

- Maximum operating temperature: 3,000 °C
- Resistant to liquid metals, oxidising and reducing atmospheres, and most solvents and chemicals
- No contamination of the furnace atmosphere
- Electrical conductor
- Resistant to traction

Example: a graphite-to-graphite bond created with Resbond™ 931 adhesive ensures a tensile strength of 17.5 MPa

Applications

- Repairing broken or cracked graphite parts: crucibles, fixtures, induction furnace
- Bonding graphite cloths, felts or boards

Implementation

- Mix the graphite powder with its activator.
- Curing at 100 °C minimum to obtain a pure graphite bond
- Post-curing in 16 hours at 130 °C

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Resbond™ 931C

Ceramic-filled graphite adhesive, 1,370 °C

Resbond™ 931C is a one-component adhesive filled with ceramic powder and graphite. It is used for bonding graphite to other materials, such as a graphite coating on a metal, glass, ceramic or any other non-porous surface.

Properties

- Good electrical conductor
- Excellent resistance to various chemicals and solvents
- Resistant to oxidation

Applications

- Bonding graphite to other materials
- Bonding graphite to a metal, glass, ceramic or any other non-porous surface.

Implementation

- Mix to obtain a smooth paste
- Curing in 24 hours at room temperature

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Graphite-Based Adhesives



Activator Binder 931T

[Activator binder 931T](#)

The 931T binder is a superior source of fine grain graphite. It is used to laminate the porous surfaces of graphite parts to increase the wear resistance of the treated parts.

The composition of the Resbond™ 931 product means that it requires specific packaging for the transportation of dangerous goods.

Applications

- Sealing agent

Implementation

- Saturation of the surfaces to treat
- Curing at 130 °C
- Overlapping of layers is possible after curing

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Graphite-Based Adhesives



Technical Data

Property	Unit	931	931C
Code UN		UN2874	-
Max. Operating Temperature	°C	3,000	1,370
Components		2	1
Appearance		Paste	Paste
Filler		Ceramic-Graphite	
Compressive Strength at 20 °C	MPa	20.7	29
Flexural Strength at 20 °C	MPa	10.3	12.4
Thermal Conductivity	W.m ⁻¹ .K ⁻¹	8.64	5.76
Thermal Expansion	10 ⁻⁶ .K ⁻¹	7.4	7.4
Dielectric Strength		Conductor*	
Resistivity		Conductor*	
Mix Ratio	Powder - Binder	100 - 35	-
Cure at Room Temperature		-	24 h
Fast Cure		4 hrs at 100 °C	-
Post-Cure	°C	16 hrs at 130 °C	2 hrs at 93 °C

*The presence of small amounts of graphite compromises its insulating properties but is not sufficient for an electrical current to pass through

