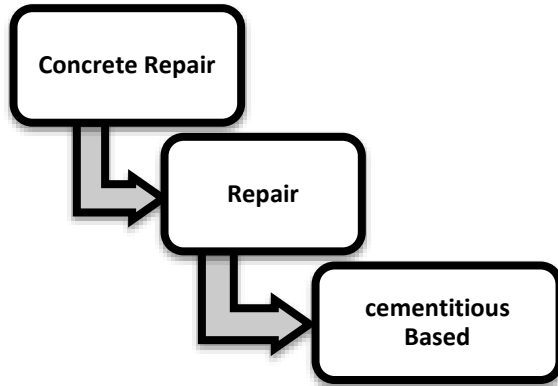


FAMILY TREE



PRODUCT DESCRIPTION

Nasa S is a one component polymer modified and Fiber reinforced dimensionally stable repair mortar. Nasa S is a blend of dry powders, selected aggregates and fibers which when mixed with water produces a thixotropic mortar suitable for vertical and overhead Application.

FIELD OF APPLICATION

Area Type	: <input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Semi-wet	<input type="checkbox"/> Submerged
Area Location	: <input checked="" type="checkbox"/> UV Resistant <input checked="" type="checkbox"/> car parks	<input checked="" type="checkbox"/> Warehouses <input checked="" type="checkbox"/> Cladding	<input checked="" type="checkbox"/> Roof Decks
Type of Application	: <input checked="" type="checkbox"/> Horizontal	<input checked="" type="checkbox"/> Vertical	
Substrates	: <input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Cement based Plaster	<input checked="" type="checkbox"/> Anodized Aluminum <input checked="" type="checkbox"/> Natural Stone	<input checked="" type="checkbox"/> Windows and door frame <input checked="" type="checkbox"/> Marble

TYPE OF APPLICATION:

- Repair of all types of structural concrete where high strength and extremely low shrinkage properties are required.
- For the repair of vertical and overhead elements.
- As a repair mortar for all structural elements in Buildings, water retaining structures, industrial plants, bridges, etc.

PROPERTIES

• Water vapour permeable.	• Thixotropic properties allowing extra high build for.
• Shrinkage controlled polymer modified cementitious repair mortar.	• Can be spray applied allowing for rapid application of large areas with minimal rebound.
• Easy to apply, single component, requires only addition of water.	• Suitable for internal and external application.
• Extremely low permeability to water, providing	• Vertical and overhead applications. High early mechanical strength
• Excellent protection to steel reinforcements and host Concrete.	
• High early mechanical strength.	

PREPARATION

Working Conditions	: 5° to 35°C.
Tools / Equipment	: Mechanically powered mixer, plastic bucket, and steel trowel.
Substrate	: All damaged and weak concrete should be cut back to reach sound concrete and/or to a minimum depth of at least 10 mm. Corroded steel reinforcement should be grit blasted to remove all rust traces. In case of significant loss in the steel reinforcement cross section, the steel should be replaced. Remove all concrete form around exposed steel reinforcements by 10 mm thickness. The perimeters of the repair area should be saw cut to a minimum depth of 10 mm. The prepared area should be cleaned thoroughly by brush and/or compressed air.
Priming	: All grit blasted steel reinforcements should be primed within 2 to 4 hours with one or two coats of zinc rich epoxy coating. Areas to be repaired with Nasa S should be soaked

This Technical Data Sheet is prepared based on extensive research and practical experience. With the varieties of the materials and conditions of application is out of our control, Apollo assumes no responsibility for the obtained results and / or damages caused by the usage of this product. Apollo Technical Service family is always available at your disposal for any advice and directions that might be required.

With clean water before applying the repair mortar. All excess water should be removed prior to applying one coat of acrylic bonding agent. Should be left to become tacky before applying the repair mortar.

MIXING

Ratio	: 4.5 liter of clean water should be added /25 kg.
Process	: To ensure proper mixing, a mechanically powered mixer or drill fixed with suitable paddle should be used. 4.5 liter of clean water should be added to clean container. The powder is then added slowly to the water while mixing continuously with low speed mixer/drill (400 - 600rpm). Mixing time should be continued for 3 minutes until uniform consistency is obtained.

APPLICATION

Application Method	: Mechanically powered mixer, plastic bucket, and steel trowel.
Coating Thickness	: Nasa S can be applied in a single application for sections up to 50 mm thick in overhead applications and 75 mm thick in vertical applications. Thickness should not be less than 10 mm deep in all applications. Nasa S repair area should not exceed 2.5 m ² in single application.
Coverage	: Approximately 13 - 14.5 liter/25 kg bag.
Position	: The described process is suitable for vertical and horizontal applications.
Priming	: All grit blasted steel reinforcements should be primed within 2 to 4 hours with one or two coats of zinc rich epoxy coating. Areas to be repaired with Nasa S should be soaked with clean water before applying the repair mortar. All excess water should be removed prior to applying one coat of acrylic bonding agent. Should be left to become tacky before applying the repair mortar.
Process	: Nasa S can be applied by trowel or hand. The mixed mortar should be applied using firm pressure to fully compact the mortar to ensure good adhesion with the steel reinforcements and the substrate. Finishing and leveling should be carried out initially by wooden or plastic float. Final finishing should be carried out using steel float.
Curing	: As Nasa S is a cementitious based material, it should be cured in a similar method to concrete. Curing can be conducted by using Curing compound or by wet hessian sheets covered with polyethylene sheets.
Cleaning	: All tools should be cleaned immediately after application using fresh water. Hardened materials must be cleaned mechanically.

PACKING

Standard Package	: Nasa S is available in 25 kg bags.
Custom Package	: Special packages can be arranged for large requirements.
How to Order	: Specify the Product Name followed with a hyphen and package size.

STORAGE CONDITION

Shelf Life	: A shelf life of 12 months from date of manufacture if stored at temperatures between 2°C and 40°C in original unopened bags.
Temperature	: 2°C and 40°C
Points of Attention	: Store in shaded area and properly sealed in its original packing

TECHNICAL PROPERTIES

PROPERTY	STANDARD	VALUE
Standard	ASTM	
Testing Conditions	Tests were carried out in Apollo R&D laboratory @ 25°C	
Component		Single component
Form		Powder
Colour		Grey White
Fresh Wet Density	ASTM D1475	2.15 ± 0.1
Drying shrinkage	ASTM C157 - 93	< 300 microstrain @ 7days <500 microstrain@28 days
Rapid chloride permeability	AASHTO 277-93	< 500 Coulombs
Water penetration	DIN 1048, Part 5	< 5 mm
Compressive strength	(wet cure) ASTM C109/109M-02	≥ 50 MPa @ 7 days ≥ 60 MPa @ 28 days
Flexural strength	BS 6319, Part 3 : 1990	> 11 MPa @ 28 days
Tensile strength	BS 6319, Part 7 : 1985	5 MPa @ 28 days
VOC	ASTM D2369	< 10 g/ltr

ATTENTION

PPE	: NASA S may cause irritation to skin or eyes. In case of accidental contact with eyes, immediately flush with plenty of water for at least 10 minutes and seek medical advice if necessary.
Hazardous Classification	: Non-Hazardous transportation.
Fire	: Non-flammable.

APOLLO AT THE GLANCE

Apollo is confident with the technical solutions and high quality end products served to the customers.

Apollo invites you to explore other services and products:

• R&D and manufacturing custom solutions	• Adhesives	• Bonding Agents Systems
• Building Finishing Systems	• Concrete Admixture	• Concrete Repair Systems
• Flooring Systems	• Grouts & Anchoring Systems	• Painting & Putty Systems
• Protective Coatings	• Sealant & Jointing Solutions	• Structural Strengthening Solutions
• Surface Treatment Solutions	• Tile Adhesive & Grouting Solutions	• Waterproofing Systems