

## CONSTRUCTION / MINING / TUNNELING / GEO-STABILIZATION

# CARBOSTOP 102 – CARBOSTOP 102 ACC

## ONE COMPONENT POLYURETHANE RESIN

### DESCRIPTION

CarboStop 102 is a low viscosity, water-reactive, one-component polyurethane resin. CarboStop 102 is solvent and is CFC free. CarboStop 102 ACC is a catalyst mixture and must be added to the resin to adjust the reaction speed to the situation. The reaction starts after contact with a sufficient quantity of water.

In contact with water CarboStop 102 reacts to form a polyurethane/polyurea product (see “Reaction time”). In practical application, the foaming factor depends mainly from the confinement in the medium, by the mechanical pressure generated by the pumping system, or by the contained expansion of reacting resin. The foaming factor is generally higher in wide cracks or in loose gravel, while fine cracks or sand will restrict the expansion. The density, rigidity and general strength of the foam will increase exponentially. It is in all cases advised to restrict the free expansion by the maintaining of sufficient back pressure. The foaming factor of the grout mix is not altered by the turbulence of the water streams.

When compared to dual component systems, the CarboStop 102 contained in a high-pressure hose does not harden out. Nevertheless, for interruptions exceeding one day, the pump and hoses should be purged.

### USES

CarboStop 102 is used for stabilization and water sealing of soils, foundations and materials and structures in tunnelling and underground engineering. CarboStop 102 is also used for geotechnical and off shore constructions and hydraulic engineering.



### ADVANTAGES

- Fills large voids under high water transit and pressure
- Stoppage of water inflows (even saltwater) under speed and high pressure
- Fixing of anchors, self-drilling anchors, drill bolts and cable bolts in water-bearing fine sands and porous materials

### APPLICATION METHOD

We recommend storing the products for at least 12 hours at a minimum temperature of 60°F (15°C) prior to their processing, in order to achieve the recommended processing temperature of between 50 °F (10°C), and 86°F (30°C). CarboStop 102 ACC must be added for a controlled start of the reaction. Before pumping, the CarboStop 102 ACC is added in predetermined quantity to the CarboStop 102 resin, allowing adjustment of the grout reactivity. Both components must be mixed thoroughly. The mix is injected as a one-component grout that hardens after contact with sufficient quantity of water. Should the area to be sealed contain an insufficient quantity of water to trigger all the elements of the resin, then a complete reaction of CarboStop 102 can be achieved by pre-, simultaneous-, or post injection with water.

**TECHNICAL DATA**

The above data are laboratory data. Results may vary in practice due to thermal exchange between resin and strata, surface properties of the rock, humidity, pressure, and other factors.

**MATERIAL DATA**

Parameter	Unit	CarboStop 102	CarboStop 102 ACC	Standard
Density at 77°F	Kg/m <sup>3</sup>	1100 ± 20	970 ± 15	DIN 12791-1
Color		brown	yellow	
Flash point	°F	>212	>300	DIN 53213
Viscosity at 40°F	cps	710 ± 70	-	ISO 3219
Viscosity at 50°F	cps	475 ± 70	-	ISO 3219
Viscosity at 60°F	cps	315 ± 40	-	ISO 3219
Viscosity at 68°F	cps	225 ± 40	-	ISO 3219
Viscosity at 77°F	cps	170 ± 40	35 ± 10	ISO 3219

**REACTION DATA**

Percentage by Weight of CarboStop 102 ACC	[%]	2.00	6.00	10.00
<b>Temperature 40°F</b>				
Start Time	[s]	64	25	22
Setting Time	[s]	570	160	100
<b>Temperature 60°F</b>				
Start Time	[s]	53	21	16
Setting Time	[s]	540	145	87
<b>Temperature 77°F</b>				
Start Time	[s]	47	16	13
Setting Time	[s]	420	115	65
Foaming Factor (free rise)		approximately 62		

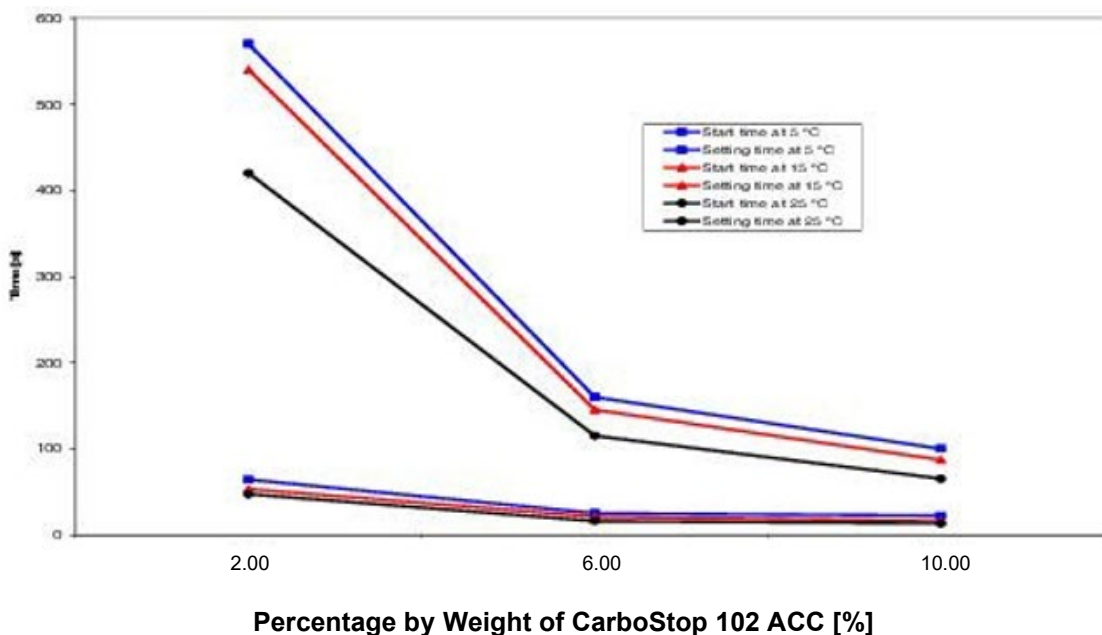
The reaction times were determined by mixing 100 g of the blend into 200 g sand (H31). The reaction has been triggered by the addition of 10%, clean tap water, to the freshly prepared blend. Specific contaminants in the water on the site may give different reaction times.

**MECHANICAL DATA**

Parameter	Unit		Standard
Compressive Strength (after 6 weeks)	psi	1700	DIN EN ISO 604
E modulus (after 6 weeks)	psi	43,000	DIN EN ISO 604

CarboStop 102 + CarboStop 102 ACC injected in sand (quartz type H 32)

**Reaction times in relation to different temperatures and accelerator content:**



**SAFETY INSTRUCTIONS AND LIMITATIONS**

Observe the usual precautionary measures for handling chemicals, see CarboStop 102 SDS.

When the material is warmed up, local overheating of the resin or accelerator canisters must be avoided by all means. Please assure yourself that the valves are closed so that no water can enter the hose and trigger the reaction of the grout. We always advise flushing the pump with the cleaner CarboSolv D in order to prevent the pump and valves from sludging. Should the interruption exceed one day, we'll always advise to lubricate the internal parts of the pumps and the hoses with CarboSolv S as well.

**PACKAGING AND TRANSPORTATION**

CONTAINER TYPE	CARBOSTOP 102	CARBOSTOP 102 ACC
	PC (Jug) 57 lbs (26 kg)	Mini Container 11 lbs (5 kg)
Steel Drum	473 lbs (215 kg)	N/A
IBC (Tote)	2,365 lbs (1,073 kg)	

Other packing units available on request.

**STORAGE AND SHELF LIFE**

CarboStop 102 and CarboStop 102 ACC are moisture-reactive systems and very sensitive to contact with moisture and humidity, and are therefore filled under a protective blanket of dry nitrogen. The components can be stored for at least 12 months when kept dry and in closed original package. Once opened, the components should be used as soon as possible. After the addition of the catalyst, the mixture has a shelf life of at least 48 hours, when completely protected from moisture or direct contact with water.

**DISPOSAL**

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of material in accordance with all applicable federal, state/provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

**APPROVALS AND CERTIFICATES**



an ISO 9001:2015  
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**DISCLAIMER**

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**ADDITIONAL DOCUMENTATION**

If further information is required consult Minova Americas website: [www.minovaglobal.com](http://www.minovaglobal.com).

- CarboStop 102 SDS
- CarboStop 102 ACC SDS
- Minova CarboStop 1C Injection Resin for Tunneling and Underground Engineering Brochure
- Minova Technical Handbook - Handling Injection Resins
- Minova – Pumps for Civil Engineering, Tunneling and Restoration
- Minova CarboStop Product Specification

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