TECHNICAL DATA SHEET

Rev. N° 2 - 28.04.2025

3MG.012
Castable Ceramic Cements

COTRONICS CORP
High Temperature Specialty Materials Since 1971

Summary

Final Advanced Materials Sàrl
3 rue de Paris – 68350
Brunstatt-Didenheim – France
Tel : +33 (0) 3 67 78 78 78

Final Advanced Materials GmbH
Basler Strasse 115
79115 Freiburg – Deutschland
Tel: + 49 (0) 761 47 87 336

www.final-materials.com

Overview

Rescor™ castable ceramic cements are available in six different formulations to meet the different needs of industry. These products enable the fast manufacturing of moulds, tubes, crucibles and other complex parts. They can be used in just a few minutes: supplied "ready for use", they must be mixed with the activator.

Once applied, ceramic cements cure at room temperature. However, an appropriate heat treatment improves their final properties.

The resulting products offer good resistance to corrosive atmospheres, concentrated hydrochloric and sulphuric acids as well as strong bases. These characteristics make them ideal for use in industry or research and development.

The surface finish and detail of the part obtained depend on the quality and finish of the tooling.

Implementation Guidelines

The Rescor™ 700 serie (740, 750, 760, 770 and 780), Rescor™ products 360M and RTC-60 enable the fast production (just a few minutes) of complex parts. They cure at room temperature, with or without subsequent post-curing. This heat treatment improves the hardness and/or resistance of the finished product. The parts can then be used at temperatures ranging from 1,260 to 2,200 °C.

Important

- Specific binders are supplied with some of the cements: they are not resistant to frost and must be stored above zero.
- Pot life: approximately 20 minutes for all cements.
- Curing two-component mixtures: at room temperature in 2 to 4 hours.
- 90 % of the final hardness is guaranteed after 24 hours.

Shrinkage

Even though very small, shrinkage must be taken into account for all critical applications. The values set out below vary according to the mixing conditions. A moulding test is recommended for cases where dimensional accuracy is essential.

Cure Temperature	°C	23	535	910	1,350
Typical Shrinkage	%	0.1 to 0.5	0.3 to 1.3	0.5 to 2.0	1.0 to 2.5
Modules of Rupture	MPa	5.5 to 8.2	6.8 to 13.7	10.3 to 20.6	20.6 to 48.3

Applications

- Casting moulds for molten metals
- Electrical and thermal insulators
- Welding jigs and fixtures
- Furnace parts
- Prototypes or short runs
- Crucibles
- Tooling
- Brewing supports

Example of moulding an alumina part:


Pouring


Demoulding


Final part

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 safety data sheets.

Product Range

These ceramic cements are available in six different compositions which are adapted to applications requiring great precision and excellent dimensional stability.

Rescor™ 740 – Lightweight insulating foam, 1,260 °C

Properties

- Composition: alumina silicate
- Lightweight, high-strength foam
- Good thermal insulation
- Excellent resistance to oxidising and reducing atmospheres
- Good resistance to non-ferrous metals and the steam of most chemicals and solvents

Implementation

- Curing: at room temperature
- Highly machinable

Rescor™ 750 – Liquid silica, 1,480 °C

Properties

- Composition: liquid silica
- Excellent resistance to thermal shocks
- Not very expandable
- Thermally insulating at 0.58 $W.m^{-1}.K^{-1}$
- Good thermal and dimensional stability
- Excellent electrical and mechanical properties

Applications

- For casting metals
- Producing large parts (2 m, for a weight of one tonne)

Implementation

- Curing: at room temperature
- Easy to use: no specific tooling required

Rescor™ 760 – Liquid zircon, 2,200 °C

Properties

- Composition: liquid zircon
- Maximum operating temperature: 2,200 °C
- Very good resistance to chemical attacks

Caution: this cement becomes electrically conducting when the temperature exceeds 900 °C.

Rescor™ 770 – Thermally conductive liquid silicon carbide, 1,480 °C

Properties

- Composition: liquid silicon carbide
- Maximum operating temperature: 1,480 °C
- Excellent resistance to oxidisation and erosion

Applications

- For casting and moulding molten metals
- For creating runners, crucibles and nozzles

Rescor™ 780 –Liquid alumina, 1,650 °C

Properties

- Composition: liquid aluminium oxide
- Maximum operating temperature: 1,650 °C
- High mechanical strength
- Electrically insulating

Applications

- General purpose cement
- Recommended for all types of applications

Implementation

- Mix the powder and activator
- Pour this paste into the mould

Rescor™ RTC 60 – Pure alumina powder, 1,790 °C

Properties

- Composition: pure alumina
- Maximum operating temperature: 1,790 °C
- Low adhesion
- Resistant to hot materials, oxidizing and reducing atmospheres, molten metals
- Resistant to acids and common detergents
- Different grain sizes available:
    - Standard grain: all applications, ideal for large parts
    - Fine grain: for small production series

Applications

- For pouring into any non-absorbent moulds

Implementation

- Powder to be mixed with water to obtain a paste
- Add Resbond™ 901A binder as required

TECHNICAL DATA SHEET 3MG.012

Property	Unit	740	750	760	770	780	RTC-60
Description		Insulating Foam	Shock Resistant	Ultra Temperature	Corrosion Resistant	General Use	High Purity
Nature		Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Composition		Al_2O_3-SiO_2	SiO_2	ZrO_2	SiC	Al_2O_3	Al_2O_3
Colour		yellow	white	yellow	black	white	white
Max. Operating Temperature	**°C**	1,260	1,480	2,200	1,480	1,650	1,790
Density	**g/cm³**	0.86	1.76	4.0	2.32	2.88	2.8
Shrinkage at 540 °C	**%**	1.0	1.3	1.0	1.5	1.0	1.25
Compressive Strength	**MPa**	10.3	41.3	27.5	41.3	41.3	17.2
Modules of Rupture	**MPa**	6.2	10.3	8.2	10.3	12.4	6.8
Specific Heat	**$J\ K^{-1}\ kg^{-1}$**	1.008	-	-	-	-	-
Thermal Conductivity at 260 °C	**$W.m^{-1}.K^{-1}$**	0.14	0.58	0.94	4.3	1.44	1.44
aThermal Expansion	**$10^{-6}.K^{-1}$**	8.1	0.5	10.1	8.1	7.2	7.2
Dielectric Strength	**kV/mm**	3.9	3.9	Conductor*	Conductor *	7.8	6.8
Resistivity	**Ω.m**	10^{11}	10^{11}	-	-	10^{11}	10^{12}
Mix Ratio	**Powder : Liquid**	100 : 62	100 : 28	100 : 18	100 : 24	100 : 24	100 : 10
Working Time	**min**	20	20	20	20	20	25
Curing conditions		24h at RT + 2h at 110 °C + 3-4h at 950 °C					

*The presence of small quantities of metal in the powder compromises its insulating properties but is not sufficient for an electrical current to pass through.

FRANCE : 4 avenue de Strasbourg – 68350 Didenheim – Tel : +33 (0) 3 67 78 78 78
DEUTSCHLAND: Basler Strasse 115 – 79115 Freiburg – Tel: + 49 (0) 761 47 87 336
www.final-materials.com

Castable Ceramic Cements

Packaging

Item N°	Adhesive		Hardener	
	Volume	Unit	Masse / Volume	Volume
101-1	4 kg	Gallon US	400 g	Pint US
101MR	530 ml	Aerosol	One-component	
740-1	2.7 kg	Gallon US	2.2 kg	½ Gallon US
740-2	13.5 kg	5 Gallon US	9 kg	2 Gallon US
740-3	Kit 45 kg – Contact us			
740-1A	/	/	4.5 kg	½ Gallon US
740-2A	/	/	22.7 kg	Gallon US
750-1	3.6 kg	Bag	1.1 kg	Quart US
750-2	18 kg	5 Gallon US	5.6 kg	Bottle
750-3	36 kg	2 x 5 Gallon US	11.3 kg	Bottle
760-1	3.6 kg	Bag	1.1 kg	Quart US
760-2	18 kg	2 Gallon US	4.5 kg	Gallon US
760-3	36 Kg	NC	9 kg	NC
770-1	3.6 kg	Bag	1.1 kg	Quart US
770-2	18 kg	5 Gallon US	4.5 kg	Gallon US
770-3	36 kg	2 x 5 Gallon US	9 kg	2 Gallon US
780-1	3.6 kg	Bag	1.1 kg	Quart US
780-2	18 kg	5 Gallon US	4.5 kg	Gallon US
780-3	36 kg	2 x 5 Gallon US	9 kg	2 Gallon US
RTC60-F	4.5 kg	Bag	Water	
RTC60-FBP1	22.6 kg	5 Gallon US	Water	
RTC60-FBP2	45 kg	2x 5 Gallon US	Water	
RTC60-M	4.5 kg	Bag	Water	
RTC60-MBP1	22.6 kg	5 Gallon US	Water	
RTC60-MBP-2	45 kg	2x 5 Gallon US	Water	
RTC60-R	4.5 kg	Bag	Water	
RTC60-RBP1	22.6 kg	5 Gallon US	Water	
RTC60-RBP2	45 kg	2x 5 Gallon US	Water	
RTC60-TK	2x 2.25 kg	Bag	Water	
RTC70-EF-1	3.6 kg	Bag	1.1 kg	Quart US
RTC70-EFBP1	18.1 kg	5 Gallon US	4.5 kg	Gallon US
RTC70-EFBP2	36.2 kg	2x 5 Gallon US	9 kg	Gallon US

Grain size:
R : regular / M : medium / F : fine / TK : Fine + Regular

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.