



## Technical Data Sheet

# Ceranium<sup>®</sup> CH

Ceranium CH is a wear resistant and high chemical resistant PolymerCeramic

(Data Sheet Version 11.1 dd. 21.09.2009)



**MultiMetall**  
the MetalExistenceCompany™

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MultiMetall • P.O. Box 12 02 64 • 41720 Viersen • Germany  
Tel: +49 (0) 21 62-97 00 9-0 • Fax: +49 (0) 21 62-97 00 9-11  
Email: [info@polymermetal.com](mailto:info@polymermetal.com) • Web: [www.polymermetal.com](http://www.polymermetal.com)

www.kasra.asia ۰۲۱ ۲۲۶۴۶۷۸۳-۴ ۰۲۱ ۲۲۶۳۰۶۰۸-۱۰ تلفکس: شرکت کسری نماینده انحصاری فروش محصولات شرکت MultiMetall آلمان در ایران می باشد.

## Technical Data Sheet

# Ceramium® CH

### Product description

Ceramium CH is a wear resistant and high chemical resistant PolymerCeramic. Possible applications of this material are protective coatings and linings against a plurality of aggressive chemicals.

Ceramium CH is a two-component-product which is available in soft pasty or brushable application consistency. Depending on the designated chemical resistance either Hardener CH1 or Hardener CH2 is chosen.

### Technical data

Application consistency:	(soft) pasty or brushable
Colour after curing:	grey-green
Compressive strength (DIN ISO 604):	180 MPa (26100 psi)
Brinell hardness (DIN 50351):	30
Temperature resistance:	-150 °C to +270 °C
Corrosion:	none
Electrochemical corrosion (DIN 50900):	none
Machinability:	with SiC-grinding plates or Diamond tools by dry cut
Cutting speed:	$v_c = 60 - 125$ m/min
Cutting depth:	$a_p = 0,5 - 1$ mm
Feed:	$f = 0,1 - 0,2$ mm/r
Roughness grade after use of diamond-equipped tools:	3,4 $\mu$ m
Density (mixed components):	
Ceramium CH + Hard. CH1, pst.:	1,94 g/cm <sup>3</sup>
Ceramium CH + Hard. CH1, liq.:	1,96 g/cm <sup>3</sup>
Ceramium CH + Hard. CH2, pst.:	1,97 g/cm <sup>3</sup>
Ceramium CH + Hard. CH2, liq.:	1,98 g/cm <sup>3</sup>

### Chemical resistance

Ceramium CH has an excellent chemical resistance. For the use at inorganic acids and caustic solutions we recommend using Hardener CH1; for the use at organic acids and solvents we recommend using Hardener CH2.

The resistance to chemical stress like acids, caustic solutions, solvents, salts, gases, etc. depends on the concentration, temperature and duration of the exposure. Further details can be given on request.

The following test results have been made:

Resistance of Ceramium CH with Hardener CH1			
Chemical	Duration	Weight increase	
Nitric acid 50%	90 days	+ 0,84 %	*1
Sulphuric acid conc.	90 days	+ 0,12 %	*1
Hydrochloric acid conc.	90 days	+ 0,36 %	*1
Hydrofluoric acid 50%	90 days	+ 5,68 %	*2
Resistance of Ceramium CH with Hardener CH2			
Chemical	Duration	Weight increase	
Methanol	90 days	+ 1,82 %	*1
Dichloromethane	14 days	+ 11,31 %	*1
Dichloromethane	90 days	+ 2,36 %	*3
Acetic acid 50%	90 days	+ 2,85 %	*2

Acetic acid 98% 90 days + 0,48 % \*4

\*1 Curing 9 days at room temperature

\*2 Curing 1 day at room temperature + aftercuring 20 h at 30-40 °C

\*3 Curing 1 day at room temperature + aftercuring 2 hours at 65 °C

\*4 Curing 1 day at room temperature + aftercuring 3 hours at 130 °C

### Surface preparation

- Mechanically rough up the surface by blasting (it is recommended for blasting to use angular grit material; surface finish approx. 75  $\mu$ m; purity level approx. Sa 2½ according to Swedish standard SIS 055900 / ISO 8501-1), cutting, grinding...
- Clean by sweeping, blowing off or exhausting
- Thoroughly degrease with MM-Degreaser Z or MM-Degreaser C or at least a good grease dissolver (ethyl acetate, acetone,...); don't use alcohol, benzine or paint thinner
- Apply a thin layer of MM-Release agent on the surfaces, that should not bond with the material and polish after a short drying period

### Processing data for use with Hardener CH1

Mixing ratio by:	Weight	Weight
Ceramium CH	100	100
Hardener CH1, pasty	7,5	-
Hardener CH1, liquid	-	6,5
Application consistency	(soft) pasty	brushable
Temperature	Pot life	Curing
20 °C	30 min	24 h
30 - 35 °C	approx. 30 min	24 h

After curing a physical load is possible. Full chemical load should not happen until a further curing has taken place in addition to the above mentioned curing time. The chemical resistance increases at higher curing temperatures as following:

Usual curing of 24 hours followed by		
Curing	at temperature	Resistance
8 days	room temperature	+
20 hours	30 - 40 °C	++
2 hours	65 °C	++
3 hours	130 °C	+++

From a curing below room temperature (18 - 20 °C) should be refrained.

### Processing data for use with Hardener CH2

Mixing ratio by:	Weight	Weight
Ceramium CH	100	100
Hardener CH2, pasty	5,5	-
Hardener CH2, liquid	-	5
Application consistency	(soft) pasty	brushable
Temperature	Pot life	Curing
20 °C	30 min	24 h
30 - 35 °C	approx. 20 min	24 h

After curing a physical load is possible. Full chemical load should not happen until a further curing has taken place in addition to the above mentioned curing time. The chemical resistance increases at higher curing temperatures as following:

Usual curing of 24 hours followed by		
Curing	at temperature	Resistance
8 days	room temperature	+
20 hours	30 – 40 °C	++
2 hours	65 °C	++
3 hours	130 °C	+++

From a curing below room temperature (18 - 20 °C) should be refrained.

### Application instruction

Before mixing the components the work piece should be prepared in accordance with the surface preparation. Always use clean tools for the removal of the components to avoid a reaction within the tins. We recommend mixing only the quantity of material which can be processed within the pot life.

Under consideration of the mixing ratio the components must be mixed very thoroughly.

The mixture can be applied with a spatula, brush or any other suitable tool.

When using a spatula, a brush et cetera, first thoroughly apply a thin layer of the material with pressure onto the work piece to avoid air bubbles in the interface between metal and the material ensuring a good surface contact. Immediately afterwards apply the required layer thickness on the still soft material.

All used tools should be cleaned straight after use.

### Multiple coating

If the previous coating is already partly cured, it is obligatory to do a surface preparation again by roughening (preferably by careful light blasting) the previous coating before applying the next coating.

### Working security

Avoid eye and skin contact. In case of skin contact, wash thoroughly with soap and water. In case of eye contact, rinse thoroughly with water.

### Storage

Both components (Ceranium CH + Hardener CH1 or Hardener CH2) can be stored for at least 5 years, if kept at temperatures below 25 °C. The materials do not lose their high quality performance after repeated openings of the containers if the containers (especially regarding Hardener CH1) are tightly closed again immediately after usage.

### Order information

No.	Product	Unit
622	Ceranium CH, pasty	1000 g
623	Hardener CH1, pasty	75 g
624	Hardener CH1, liquid	65 g
625	Hardener CH2, pasty	55 g
626	Hardener CH2, liquid	50 g

  

Economicalness	Used quantity	Area	Volume
Ceranium CH	1000 g	1075 g	0,554 m <sup>2</sup> 554 cm <sup>3</sup>
Hardener CH1, pst.	75 g		

Ceranium CH	930 g	1000 g	0,515 m <sup>2</sup>	515 cm <sup>3</sup>
Hardener CH1, pst.	70 g			
Ceranium CH	1807 g	1942 g	1 m <sup>2</sup>	1000 cm <sup>3</sup>
Hardener CH1, pst.	135 g			

Economicalness	Used quantity	Area	Volume
Ceranium CH	1000 g	1065 g	0,544 m <sup>2</sup> 544 cm <sup>3</sup>
Hardener CH1, liq.	65 g		
Ceranium CH	939 g	1000 g	0,511 m <sup>2</sup> 511 cm <sup>3</sup>
Hardener CH1, liq.	61 g		
Ceranium CH	1838 g	1958 g	1 m <sup>2</sup> 1000 cm <sup>3</sup>
Hardener CH1, liq.	120 g		

Economicalness	Used quantity	Area	Volume
Ceranium CH	1000 g	1055 g	0,534 m <sup>2</sup> 534 cm <sup>3</sup>
Hardener CH2, pst.	55 g		
Ceranium CH	948 g	1000 g	0,506 m <sup>2</sup> 506 cm <sup>3</sup>
Hardener CH2, pst.	52 g		
Ceranium CH	1871 g	1974 g	1 m <sup>2</sup> 1000 cm <sup>3</sup>
Hardener CH2, pst.	103 g		

Economicalness	Used quantity	Area	Volume
Ceranium CH	1000 g	1050 g	0,530 m <sup>2</sup> 530 cm <sup>3</sup>
Hardener CH2, liq.	50 g		
Ceranium CH	952 g	1000 g	0,504 m <sup>2</sup> 504 cm <sup>3</sup>
Hardener CH2, liq.	48 g		
Ceranium CH	1889 g	1983 g	1 m <sup>2</sup> 1000 cm <sup>3</sup>
Hardener CH2, liq.	94 g		

The areas were achieved at a layer thickness of 1 mm.

No.	Accessories	Unit
10	MM-Degreaser Z, liquid	1000 ml
11	MM-Degreaser Z, liquid	250 ml
24	MM-Degreaser C, liquid	250 ml
14	MM-Release agent, liquid	100 ml

### Availability

Technical data sheets are generally available in German or English language. Ceranium CH is only produced in Germany and delivered worldwide within short time by MultiMetall. In addition to that our products are internationally available from many MultiMetall-partners. Ask for further products from MultiMetall.

### Note

The product information and instructions provided in this leaflet were prepared to the best of our knowledge and serve information purposes only. We recommend that appropriate tests are carried out prior to application in order to ensure that the products and methods fulfil the purpose desired by the user. In this procedure, the given data may serve as a basis. Application and processing of the products lie outside our possible control and are therefore the sole responsibility of the user.

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Data Sheet Version 11.1 dd. 21.09.2009

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