Cogetherm

Heat Resistant Materials

GENERAL DESCRIPTION

Cogetherm is a mica laminate designed for electromechanical and thermo-mechanical applications requiring one or more of the following properties: excellent resistance to heat and even to open flame up to 1000°C, low thermal conductivity, excellent electrical insulation, high resistance to pressure, impervious to most chemicals, in particular oil and grease, asbestos-free and ecologically safe and non-toxic. Cogetherm is available in 4 different types:

Cogetherm M consisting of Cogemica Muscovite and bonding material has higher resistance to pressure and is most recommended for complicated cut pieces.

Cogetherm MC is the “desmoked” grade of the Cogetherm M. During first application at temperature above 250°C, fumes coming out of Cogetherm MC are very low.

Cogetherm P consisting of Cogemica Phlogopite and bonding material has higher resistance to heat and is most recommended for applications working continuosly at temperatures above 500°C.

Cogetherm PC is the “desmoked” grade of Gogetherm P. During first application at temperature above 250°C, fumes coming out of Cogetherm PC are very low.

APPLICATIONS

Cogetherm is used as a replacement for asbestos and other insulating boards for a variety of applications. A few examples:
- due to its resistance to pressure at high temperatures, a piece of Cogetherm is placed between the plate and the die in forging presses to minimize the heat spreading through the press mechanism.
- in the hollow glassware industry, Cogetherm’s thermal qualities and abrasion resistance make it ideal for the parts which guide bottles as they leave the mold, where tem-peratures may exceed 700°C.
- Cogetherm is used in high voltage appliances thanks to its dielectric qualities and its resistance to electric arc and erosion.
- in the gas distribution sector, internal network connections are sealed using Cogetherm, due to its resistance to pressure and its extraordinary thermal properties, which results in the prevention of gas leaks even during a fire.
- in the construction of induction and arc furnaces, Cogetherm is used for its thermal and electric insulation properties, as well as its permeability to high-frequency waves.
- in the field of induction heated equipment for brazing aluminium and copper discs to cooking utensils, Cogetherm is the ideal replacement for asbestos-cement plates.

Machining

Up to 2 mm Cogetherm can be punched. We recommend that tools be fitted with draw rings. Above 2 mm we recommend machining (sawing, drilling, etc.) with high speed steel or tungsten carbide tools.

AVAILABILITY

Plates	untrimed: 1220 x 1016 mm
	usable area: 1200 x 1000 mm

Strips and punched parts according to drawings.

STORAGE

Unlimited shelf life in a dry place at room temperature.

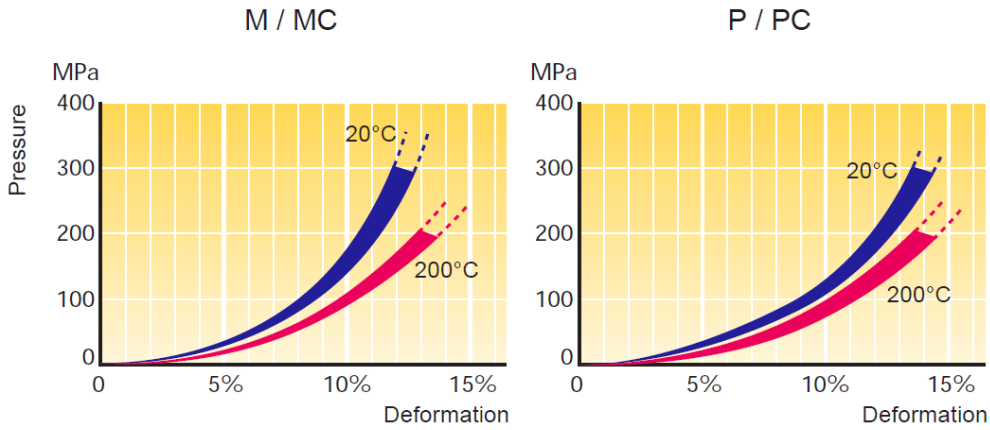
COGEBI sa Huysmanslaan 65 | B-1651 LOT BELGIUM | Phone: +32 233 491 11 | Fax: +32 237 812 09 | Email: mica@cogebi.com | sales@cogebi.com
COGEBI Inc. Crosby Road Industrial Park | 14 Faraday Drive DOVER | N.H. 03820-USA | Phone: +1 603 749 68 96 | Fax: +1 603 749 69 58 | E-mail: mica.inc@cogebi.com | sales.inc@cogebi.com
COGEBI a.s. Vozicka 2104 | 390 02 TABOR | CZECH REPUBLIC | Phone: +420 381 281 113 | Fax: +420 381 281 567 | E-mail: mica@cogebi.com | sales@cogebi.com
COGEBI Asia Sdn Bhd 752, No, 3, Jalan Subang 3 -Taman Perindustrian Sungai | Penaga | 47610 Subang Jaya, Selangor | Darul Ehsan - MALAYSIA | Phone: +603 56 35 08 00 Fax: +603 56 38 21 00 | E-mail: mica.asia@cogebi.com | sales.asia@cogebi.com
COGEBI PRC (China) Shanghai Representative Office | Suite 321, 3/F Apollo Building | 1440 Yanan Road (C), Shanghai | PRC-CHINA | E-mail: mica.china@cogebi.com | sales.china@cogebi.com
ELINAR 143232, Moskovskaya | Naro-Fominsk, Moscow region | RUSSIA | Phone: (495) 509 0316 | Fax: (495) 509 0317 | E-mail: holding@elinar.ru

Cogetherm

Heat Resistant Materials

CHARACTERISTICS

Mechanical properties		M	MC	P	PC	
Thickness	*mm*	< 80	1,5 - 10	< 80	1,5 - 10	IEC 60371-2
Tolerance 1,5 – 5,0 mm 5,0 – 30 mm 30 – 80 mm	*%*	7 5 3	7 5 3	7 5 3	7 5 3	IEC 60371-2
Mica content	*%*	90	90	90	90	IEC 60371-2
Bond content	*%*	10	10	10	10	IEC 60371-2
Density	*g/cm³*	0,69				IEC 60371-2
Compressive strength at 20°C 200°C	*MPa*	400 250	360 235	330 240	310 225	ISO 604
Tensile strength	*MPa*	150	140	110	100	ISO 527
Bending strength	*MPa*	230	200	170	150	ISO 178



Thermal properties		M/MC	P/PC
Heat resistance Continuous service Intermittent service	 *°C* *°C*	 500 700	 700 1000
Resistance to thermal shock Up to 6 mm Above 6 mm	 *°C* *°C*	 500 400	 400 200
Weight loss Continuous service Intermittent service	 *%* *%*	 < 1	 < 1 < 1
Thermal conductivity Perpendicular Parallel	 *W/m.K* *W/m.K*	 0,3 3	 0,3 3
Specific heat	*J/kg.K*	866	866
Thermal expansion Perpendicular Parallel	 $1/10^{-6}.K$ $1/10^{-6}.K$	 100 10	 100 10
Water absorption 24h/23°C	*%*	< 1	< 1

COGEBI sa Huysmanslaan 65 | B-1651 LOT BELGIUM | Phone: +32 233 491 11 | Fax: +32 237 812 09 | Email: mica@cogebi.com | sales@cogebi.com
COGEBI Inc. Crosby Road Industrial Park | 14 Faraday Drive DOVER | N.H. 03820-USA | Phone: +1 603 749 68 96 | Fax: +1 603 749 69 58 | E-mail: mica.inc@cogebi.com | sales.inc@cogebi.com
COGEBI a.s. Vozicka 2104 | 390 02 TABOR | CZECH REPUBLIC | Phone: +420 381 281 113 | Fax: +420 381 281 567 | E-mail: mica@cogebi.com | sales@cogebi.com
COGEBI Asia Sdn Bhd 752, No, 3, Jalan Subang 3 -Taman Perindustrian Sungai | Penaga | 47610 Subang Jaya, Selangor | Darul Ehsan - MALAYSIA | Phone: +603 56 35 08 00 Fax: +603 56 38 21 00 | E-mail: mica.asia@cogebi.com | sales.asia@cogebi.com
COGEBI PRC (China) Shanghai Representative Office | Suite 321, 3/F Apollo Building | 1440 Yanan Road (C), Shanghai | PRC-CHINA | E-mail: mica.china@cogebi.com | sales.china@cogebi.com
ELINAR 143223, Ateptsevo | Naro-Fominsk, Moscow region | RUSSIA | Phone: (495) 509 0316 | Fax: (495) 509 0317 | E-mail: holding@elinar.ru

Cogetherm

Heat Resistant Materials

CHARACTERISTICS

Fire resistance classification	Norm	Class
	BS 476 NBN 21-203 NFF 16 101 u. 102 UL 94	1 A1 MO u.FO 94 V-0
Fume toxicity classification	**Norm**	**Index**
	CEI 2037/85	0,16 Very low optic density of fumes Non toxic

* application parameters such as the pressure and clamping of the plate, the temperature gradient, the rate at which the temperatures rises, the cooling, etc., may have a significant impact on the maximum temperature for use.

Electrical properties		M/MC	P/PC	
Dielectric strength				IEC 60371-2
20°C	kV/mm	25	25	
400°C / 1hour, tested at 20°C	kV/mm	13	13	
600°C / 1hour, tested at 20°C	kV/mm	10	10	
Tracking resistance	V	500	525	IEC 60112
Volume resistivity				IEC 60093
20°C	Ωcm	$> 10^{16}$	$> 10^{16}$	
400°C / 1hour, tested at 20°C	Ωcm	$> 10^{12}$	$> 10^{12}$	
600°C / 1hour, tested at 20°C	Ωcm	$> 10^{9}$	$> 10^{9}$	
Loss factor				IEC 60250
160°C	$\%$	< 1	< 1	
Specific heat	$J/kg.K$	866	866	
Relative permittivity				IEC 60250
20°C	Ωcm	6,5	6	
400°C / 1hour, tested at 20°C	Ωcm	7	6,5	
Arc resistance	sec $L3$	≥ 420 2.2.1.0	≥ 420 2.2.1.0	ASTM D495 VDE 0303

Data are average results of laboratory tests conducted under standard procedures and are subject to variation. These do not constitute a warranty or representation for which we assume legal responsibility.

COGEBI sa Huysmanslaan 65 | B-1651 LOT BELGIUM | Phone: +32 233 491 11 | Fax: +32 237 812 09 | Email: mica@cogebi.com | sales@cogebi.com
COGEBI Inc. Crosby Road Industrial Park | 14 Faraday Drive DOVER | N.H. 03820-USA | Phone: +1 603 749 68 96 | Fax: +1 603 749 69 58 | E-mail: mica.inc@cogebi.com | sales.inc@cogebi.com
COGEBI a.s. Vozicka 2104 | 390 02 TABOR | CZECH REPUBLIC | Phone: +420 381 281 113 | Fax: +420 381 281 567 | E-mail: mica@cogebi.com | sales@cogebi.com
COGEBI Asia Sdn Bhd 752, No, 3, Jalan Subang 3 -Taman Perindustrian Sungai | Penaga | 47610 Subang Jaya, Selangor | Darul Ehsan - MALAYSIA | Phone: +603 56 35 08 00
Fax: +603 56 38 21 00 | E-mail: mica.asia@cogebi.com | sales.asia@cogebi.com
COGEBI PRC (China) Shanghai Representative Office | Suite 321, 3/F Apollo Building | 1440 Yanan Road (C), Shanghai | PRC-CHINA | E-mail: mica.china@cogebi.com | sales.china@cogebi.com
ELINAR [illegible]sco region | RUSSIA | Phone: (495) 509 0316 | Fax: (495) 509 0317 | E-mail: holding@elinar.ru