

PRODUCT BULLETIN

2700 Scioto Parkway Columbus, Ohio 43221 USA 614/876-0244 Fax: 614/876-0981
www.alliedmatrix.com www.alliedmineral.com



MATRIX
REFRACTORIES
A Division of
ALLIED MINERAL
PRODUCTS, INC.

MATRIPUMP 51ACX

General Information

MATRIPUMP 51ACX is part of a complete family of products that offers a wide range of installation methods: pumping, pouring, shotcreting or vibrating. MATRIPUMP 51ACX is an aluminosilicate based low cement castable designed for molten aluminum applications and heat containment. For more severe metal contact applications, the MATRIPUMP family includes, MATRIPUMP 61ACX, MATRIPUMP 70ACX, MATRIPUMP 71ACX, MATRIPUMP 72ACX and MATRIPUMP 81ACX. MATRIPUMP 51ACX offers the following features and benefits:

- > Non-wetting to aluminum alloys
- > Pumpable and shotcretable
- > Excellent hot strengths
- > Excellent value

Technical Data

Chemical Analysis

(Major Components)

Al ₂ O ₃	50.0%
SiO ₂	43.6%
CaO	2.2%
TiO ₂	2.1%
Fe ₂ O ₃	0.9%

Material Required	2.30 g/cm ³ (144 lb./ft ³)
Grain Size	10 mm (3/8") and finer
Maximum Use Temperature	1482°C (2700°F)
Installation Method	Pouring, Vibrating or Shotcreting

Packaged in 25 kg (55 lb.) multi-wall paper bags. Palletized 64 bags (1600 kg or 3520 lb.) per 42" x 42" pallet, protected with stretch wrap. Also available in bulk packaging. Storage beyond 6 months is not recommended. Store in a dry location to avoid moisture pickup.

Hydraulic Set and Water Requirements

MATRIPUMP 51ACX has a unique design, enabling the installer to adjust water levels for optimum casting behavior.

	<u>Vibrated</u>	<u>Pouring and Pumping</u>
Water Required:	5.0%	6.8%
Working Time:	40 minutes	50 minutes
Initial Set:	2-6 hours	2-6 hours
Final Set:	12-24 hours	12-24 hours

MATRIX REFRACTORIES DIVISION supplies a complete line of monolithic refractories for the metals industry. For more information or a complete evaluation of your refractory requirements, please contact your local MATRIX representative.

Warning: Contains aluminum oxide, aluminosilicates, calcium aluminate cement, and silica. The International Agency for Research on Cancer (IARC) has classified crystalline silica inhaled in the form of quartz or cristoballite carcinogenic to humans. Refer to Material Safety Data Sheet for additional information and disposal instructions. Avoid breathing dust. Wear NIOSH approved respirator during installation, removal, and disposal of product to prevent inhalation of dust. Avoid contact with skin and eyes. Cement powder or freshly mixed castable may cause eye and skin irritation. Steam spalling, which can lead to personal injury, may result from improper drying and firing procedures. In case of eye contact, flush immediately and repeatedly with water and consult a physician. Hydrogen gas may be generated when product is exposed to water. Ignition of hydrogen gas in an enclosed area can lead to personal injury. Proper ventilation should be supplied to avoid gas buildup. For safest use and optimum performance, proper practices must be followed.

(MXMP51ACX) Revised 9/15/08

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LABORATORY TEST BAR DATA

MATRIPUMP 51ACX

Casting Consistency	Pouring/Pumping			Vibrated		
Casting Water	6.8%			5.0%		
<u>Permanent Linear Change</u>	%			%		
After firing to:						
815°C (1500°F)	-0.2			-0.25		
1090°C (2000°F)	-0.3			0.0		
1480°C (2550°F)	+1.4			+2.5		
<u>Apparent Porosity</u>	%			%		
After firing to:						
110°C (230°F)	11.3			7.2		
815°C (1500°F)	15.8			13.3		
1090°C (2000°F)	16.8			13.8		
1370°C (2550°F)	16.8			11.4		
<u>Density</u>	<u>g/cm³</u>	<u>kg/m³</u>	<u>pcf</u>	<u>g/cm³</u>	<u>kg/m³</u>	<u>pcf</u>
After firing to:						
110°C (230°F)	2.32	2320	145	2.37	2366	147.7
815°C (1500°F)	2.29	2290	143	2.37	2366	147.7
1090°C (2000°F)	2.27	2270	142	2.33	2326	145.2
1370°C (2550°F)	2.15	2150	134	2.13	2134	133.2
<u>Modulus of Rupture</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>
After firing to:						
110°C (230°F)	12.4	125	1800	14.7	150	2130
815°C (1500°F)	10.3	105	1500	14.6	149	2120
1090°C (2000°F)	10.7	109	1550	15.0	152	2170
1370°C (2550°F)	10.3	105	1500	17.2	175	2490
<u>Hot Modulus Of Rupture</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>
At: 815°C (1500°F)	27.9	285	4050	-	-	-
<u>Cold Crushing Strength</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>	<u>MPa</u>	<u>kg/cm²</u>	<u>psi</u>
After firing to:						
110°C (230°F)	70.3	720	10200	125.5	1280	18200
815°C (1500°F)	64.1	650	9300	104.7	1070	15180
1090°C (2000°F)	58.6	600	8500	89.6	910	13000
1370°C (2550°F)	81.3	830	11800	108.9	1110	15800
<u>Abrasion Loss</u>	<u>cm³</u>			<u>cm³</u>		
After firing to:						
110°C (230°F)	10			9		
815°C (1500°F)	12			9		



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