

PRODUCT BULLETIN

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**ALLIED
MINERAL**
PRODUCTS, INC.

MATRIPUMP AR 61

General Information

MATRIPUMP AR 61 is part of a complete family of products that offers a wide range of installation methods: pumping, pouring, shotcreting or vibrating. MATRIPUMP AR 61 is a mullite-based low cement castable designed for applications including upper sidewalls, jambs and roofs in aluminum melting furnaces, tundish linings and pods, forge and heat treating furnaces, kiln car tops, rotary cement kiln linings, CO boilers and furnace superstructures. MATRIPUMP AR 61 offers the following benefits and features:

- >Alkali resistant
- >Outstanding thermal shock resistance
- >Tolerates a wide water range without sacrificing physical properties

Technical Data

Chemical Analysis

(Major Components)

Al ₂ O ₃	60.8%
SiO ₂	34.2%
CaO	1.3%
TiO ₂	2.1%
Fe ₂ O ₃	1.0%

Material Required.....	2.46 g/cm ³ (154 lb./ft ³)
Grain Size.....	6.7 mm (3 mesh) and finer
Maximum Use Temperature.....	1650°C (3000°F)
Installation Method	Vibration Casting to Pumping

Packaged in 25 kg (55-lb.) multi-wall paper bags. Also available in bulk packaging. Storage beyond 6 months is not recommended. Store in a dry location to avoid moisture pickup.

Hydraulic Set

	Vibration	Pump Cast
Water Required:	5.7%	6.8 – 7.3%
Working Time:	Up to 40 min.	2-4 hrs
Initial Set:	2 – 6 hrs	4-12 hrs
Final Set:	3 – 12 hrs	6-18 hrs

Allied Mineral Products, Inc. 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 Allied representative.

Warning: Contains aluminum oxide, aluminosilicates, cement and silica. The International Agency for Research on Cancer (IARC) has classified crystalline silica inhaled in the form of quartz or cristobalite 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.

(MXMPAR61AL)

1/28/13

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THE INFORMATION STATED IS BASED ON THE BEST LABORATORY AND LITERATURE DATA AND IS NOT A WARRANTY OR A GUARANTEE, NOR A VIOLATION OF ANY PATENT. IT IS PRESENTED FOR CONSIDERATION AND VERIFICATION ONLY, AND IS NOT TO BE USED FOR SPECIFICATION PURPOSES.

Laboratory Test Bar Data MATRIPUMP AR 61

Casting Consistency	Pouring/Pumping			Vibrated		
Casting Water	6.8%			5.7%		
<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)	2.50	2500	156	2.50	2500	156
815°C (1500°F)	2.50	2500	156	2.47	2467	154
1090°C (2000°F)	2.47	2467	154	2.51	2515	157
1370°C (2500°F)	2.47	2467	154	2.47	2467	154
1500°C (2732°F)	2.47	2467	154	2.45	2451	153
<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)	8.3	85.1	1210	10.3	105	1490
815°C (1500°F)	8.7	88.5	1260	11.1	114	1620
1090°C (2000°F)	14.7	150	2130	18.9	193	2740
1370°C (2500°F)	18.6	190	2700	22.3	227	3230
1500°C (2732°F)	21.2	217	3080	14.8	150	2140
<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>
After firing to:						
815°C (1500°F)	17.8	182.1	2590	20.6	210.2	2990
982°C (1800°F)	29.8	304.4	4330	33.9	345.9	4920
1090°C (2000°F)	26.1	266.4	3790	31.9	325.5	4630
<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)	45.5	464	6600	49.5	506	7200
815°C (1500°F)	45.5	464	6600	51.1	520	7400
1090°C (2000°F)	48.9	499	7100	71.7	731	10400
1370°C (2500°F)	103	1048	14900	90.3	921	13100
1500°C (2732°F)	107	1097	15600	119	1209	17200
<u>Permanent Linear Change</u>	<u>%</u>			<u>%</u>		
After firing to:						
815°C (1500°F)	-0.22			-0.19		
1090°C (2000°F)	-0.40			-0.46		
1370°C (2500°F)	-0.25			-0.12		
1500°C (2732°F)	0.05			0.40		
<u>Abrasion Loss</u>	<u>cm³</u>			<u>cm³</u>		
After firing to:						
110°C (230°F)	15.5			15.5		
815°C (1500°F)	12.5			12.5		
1000°C (1832°F)	6.8			6.8		

* Alkali salt testing data available upon request.



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