



**Ceramics Technology Group
Structural Materials Programme
SIRIM Berhad**
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CONFIDENTIAL

EVALUATION REPORT

Title: **Garnet Evaluation**

Report No.: CER 11022 (2)

Date: 16 February 2011

Job No.: CT 11015

Sample: Garnet 30/60

Company Name: Rock Garnet Trading Sdn. Bhd

Address: No. 7, Jalan Bidara 5, Bandar Botanic,
41200 Klang, Selangor

Evaluated by:

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Checked by:

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Senior Researcher





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Sample Identification:

One (1) container of Garnet sample labelled as 'Garnet 30/60' was received on 19 January 2011 for analyses listed in Table 1 below;

Table 1: Tests involved in Garnet Evaluation

Item	Description
1.	Determination of particle size distribution
2.	Determination of apparent density
3.	Assessment of hardness by a glass slide test
4.	Determination of moisture
5.	Determination of water-soluble contaminants by conductivity measurement
6.	Determination of water-soluble chlorides
7.	Determination of pH value
8.	Determination of chemical composition
9.	Determination of crystalline phase

Specification/Test Method:

Specifications for Garnet Evaluation are based on ISO 11126-10:2000 Preparation of steel substrates before application of paints and related products-Specifications for non-metallic blast-cleaning abrasives-Part 10: Almandite garnet.

Tests conducted for Garnet Evaluation (Item 1 to 6 of Figure 1) are based on ISO 11127-(Part 1-7):1993 Preparation of steel substrates before application of paints and related products-Test methods for non-metallic blast-cleaning abrasives.





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Results:

- (1) Determination of particle size distribution (ISO 11127:1993-Part 2)

Table 2: Specification for Particle Size Distribution of Almandite Garnet

Particle Size Range mm		0.2 to 0.5	0.2 to 1.0	0.2 to 1.4	0.2 to 2.0	0.2 to 2.8	0.5 to 1.0	0.5 to 1.4	0.5 to 2.0	0.5 to 2.8
Oversize	Sieve size	0.5	1	1.4	2	2.8	1	1.4	2	2.8
	Residue, % (m/m) maximum	10	10	10	10	10	10	10	10	10
Nominal Size	Sieve size	0.2	0.2	0.2	0.2	0.2	0.5	0.5	1	1.4
	Residue, % (m/m) minimum	85	85	85	85	85	80	80	80	80
Undersize	Sieve size	0.2	0.2	0.2	0.2	0.2	0.5	0.5	1	1.4
	Residue, % (m/m) maximum	5	5	5	5	5	10	10	10	10

Table 3: Result of Particle Size Distribution of the submitted sample

Sieve Size, mm	Residue, % (m/m)	Through-Flow, % (m/m)
0.600	34.9	65.1
0.425	44.8	20.4
0.300	20.2	0.25
0.250	0.19	0.05
0.150	0.05	0.01
0.075	0.01	0.00





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Table 4: Specification and Test result of the submitted sample

No.	Description	Test Method	Requirements	Results	Remarks
			ISO 11126-10 :2000		
2.	Determination of apparent density, kg/m ³	ISO 11127-3	(4.0 to 4.2) X 10 ³	4.1 X 10 ³	Complied
3.	Assessment of hardness by a glass slide test, Mohs scale	ISO 11127-4	Minimum 6	6 above	Complied
4.	Determination of moisture, % (m/m)	ISO 11127-5	Maximum 0.2	0.01	Complied
5.	Determination of water-soluble contaminants by conductivity measurement, mS/m	ISO 11127-6	Maximum 25	1.67	Complied
6.	Determination of water-soluble chlorides, % (m/m)	ISO 11127-7	Maximum 0.0025	Nil	Complied
7.	<i>Additional test</i> pH value at 25°C	-	-	6.58	-

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8.	Determination of chemical composition , % (wt.)	X-ray Fluorescence Spectrometer (XRF)	-		
	8.1 Fe ₂ O ₃			40.2	
	8.2 SiO ₂			36.1	
	8.3 Al ₂ O ₃			16.4	
	8.4 MgO			3.92	
	8.5 CaO			1.93	
	8.6 MnO			0.55	
	8.7 TiO ₂			0.48	
	8.8 K ₂ O			0.20	
	8.9 P ₂ O ₅			0.15	
	8.10 ZnO			0.11	
8.11 Cr ₂ O ₃	0.06				
9.	Determination of crystalline phase	X-ray Diffractionmeter (XRD)	-	Almandine, Fe ₃ Al ₂ (SiO ₄) ₃	-

