

TRIA-207-209

R.600. Talc: analysis and brightness tests

The following are the results of tests on a sample submitted by O. Harvey on behalf of Industrial Sands Pty Ltd and stated to have been obtained from the Marshalls Creek area.

CHEMICAL ANALYSIS

	%		%
ignition loss	7.4	CaO	0.06
SiO ₂	62.9	MgO	22.6
Al ₂ O ₃	5.3	Na ₂ O	0.09
Fe ₂ O ₃	1.1	K ₂ O	0.10
TiO ₂	0.12		

An X-ray diffraction test gave the mineral composition of the sample as:

	%
talc	76
quartz	16
chlorite	8

'SAND' EVALUATION

Sizing by sedimentation and decantation into plus and minus 20 μ fractions:

	%
sand (plus 20 μ)	16.0
decant (minus 20 μ)	84.0

BRIGHTNESS DETERMINATIONS

These determinations refer to the Tappi brightness scale as used in the paper industry. The measurements were made with Photovolt reflection meter, Model 610, standardised against a ceramic tile supplied by A.P.P.M., Burnie.

Tests were made on the raw material and the minus 20 μ fraction:

- (1) Untreated;
- (2) After bleaching with sodium hypochlorite;
- (3) After leaching with hydrochloric acid.

RESULTS OF BRIGHTNESS DETERMINATIONS

Raw material—	Brightness
(1) Untreated	60½
(2) Bleached 3 hours, 0.125% available Cl	61
Bleached 22 hours, 0.125% available Cl	61
Bleached 3 hours, 1.25% available Cl	62
Bleached 72 hours, 1.25% available Cl	62½
(3) Leached 7 hours, 5% HCl W/V	60
Minus 20 μ fraction—	
(1) Untreated	59½
(2) Bleached 3 hours, 0.125% available Cl	62
Bleached 22 hours, 0.125% available Cl	62
Bleached 3 hours, 1.25% available Cl	62
Bleached 72 hours, 1.25% available Cl	62½
(3) Leached 7 hours, 5% HCl W/V	60

NOTE: Bleaching and leaching tests were performed on pulps of 30% solids approximately. Percentage of available chlorine is based on the weight of material treated and percentage of hydrochloric acid refers to the actual HCl solution strength being used to make up the pulp.

CONCLUSIONS

The results of the brightness tests preclude this particular material from use as a filler in the paper industry. In general, brightnesses in excess of 75 are required in this application.

Negligible gains in brightness were achieved by bleaching, or leaching and it is unlikely that any other method of improving brightness would be successful or warranted.

However, the material may have some use in the ceramic industry, as an extender for pesticides and fertilisers, or as a filler in applications where colour is not significant.