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NOTE ON POSSIBILITY OF SUBSTITUTING LOCALLY PRODUCED ASBESTOS FOR IMPORTED CHRYSOTILE IN ASBESTOS-CEMENT PRODUCTS

by

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Report No. 1943/47.

For trade purposes four types of asbestos may be recognised -

	TRADE NAME	MINERALOGICAL NAMES.
1. Weak white fibre	Amphibole	Anthophyllite, tremolite and actinolite.
2. Blue fibre	Blue asbestos or Cape blue	Crocidolite.
3. Strong white fibre	White asbestos	Chrysotile.
4. Yellowish or greyish fibre	Amosite	Amosite.

1. Amphibole asbestos. In the first class the fibres are harsh, brittle and weak and this asbestos is not suitable for spinning or weaving or for the manufacture or asbestos-cement sheets in all of which cases the fibres must possess high tensile strength.

2. Blue Asbestos. Opinions differ regarding the relative tensile strengths of chrysotile, crocidolite and amosite but most manufacturers consider that crocidolite does not possess sufficient tensile strength for the production of asbestos-cement sheets.

Some time ago the Department of Supply and Shipping made inquiries of Australian manufacturers of asbestos-cement products regarding the possibility of substituting blue asbestos from Western Australia for imported chrysotile in these goods, but replies were not encouraging.

Tests were carried out by Messrs. James Hardie and Co.Pty.Limited, Sydney, who prepared test sheets using two grades of blue asbestos from Western Australia and compared the properties of these sheets with those of standard sheets made from a normal chrysotile-cement mix. The following results were obtained.

Mix	"Stress" average tensile strength with and across fibre in lb. per square inch.	Density lb. per cubic inch.	"C. Ratios".	
No.1 Blue asbestos	3833	0.05	.72	.58
No.2 Blue asbestos	3904	0.048	.74	.62
Standard white asbestos 3.6 lb. No.1 Blue .4	5340	0.056	.70	.59
Standard white asbestos 3.6 lb. No.2 Blue .4	5300	0.057	.76	.68
Average of standard mix.	5240	0.055	.86	.78

Figures under the heading "C. Ratios" in the foregoing table give the maximum and minimum ratios of tensile strength taken with and across the fibre. For satisfactory sheets these figures should approximate .85 maximum and .75 minimum. It will be seen that all the test pieces in which blue asbestos was used were deficient in tensile strength.

3. White Asbestos.(chrysotile) The only present production of white asbestos (chrysotile) is from the Copmanhurst district in New South Wales. The deposit is owned and operated by Messrs. Wunderlich Limited who use the product in asbestos-cement sheets. The production is small, 103 tons in 1942.

The Colonial Sugar Refining Co., Sydney, has formed a subsidiary to work chrysotile asbestos deposit near Zeehan. It is not known what stage has been reached in this company's operations. A letter has been written requesting information on this point and any information obtained will be submitted later.

Apart from this new development in the Zeehan district, the outlook for production in Australia of chrysotile at a reasonable price is not promising.

4. Amosite, which is produced only in South Africa, is used in that country for the manufacture of sheets but is blended with chrysotile fibre to increase the strength.

It has recently been reported that amosite can be produced in Western Australia. This report is being investigated. If true, partial substitution of amosite for imported chrysotile may be possible.

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