

Country to which exported.	1st April, 1919, to 31st March, 1920.		1st April, 1920, to 31st March, 1921.		1st April, 1921, to 31st March, 1922.		1st April, 1922, to 31st March, 1923.		1st April, 1923, to 31st March, 1924.		1st April, 1924, to 31st March, 1925.	
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£
United States of America	2,037	157,251	3,224	345,992	2,487	266,922	3,742	367,946	4,197	449,117	2,624	250,379
United Kingdom	1,650	90,422	2,544	149,422	1,297	104,094	1,960	129,082	2,409	170,785	2,360	169,975
Germany	..	..	..	..	58	3,574	70	3,363	66	2,832	117	6,367
Canada	1,016	61,005	314	24,481	89	9,641	109	7,462	118	7,714	97	5,726
Australia	23	1,936	49	4,802	37	7,073	84	6,679	7	787	24	2,006
Belgium	..	..	..	..	..	..	..	..	..	..	..	..
France	..	..	..	..	..	..	..	..	55	5,855	79	5,121
Austria-Hungary	..	..	..	..	..	..	..	..	..	..	..	..
Russia	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	90	4,381	38	1,582	53	1,917
Sweden	..	..	..	..	..	..	20	1,000	..	..	20	820
Italy	..	..	..	..	..	..	1	170	26	1,647	55	3,546
Japan	..	..	..	4	..	..	4	326	7	393	3	162
Hong Kong	..	..	..	..	..	..	..	..	..	..	..	..
Totals	4,726	310,614	6,131	524,701	3,968	391,304	6,080	520,409	6,923	640,712	5,432	446,019

THE AUSTRALIAN LINOLEUM COMPANY (LIMITED).

A company has been formed in New South Wales to manufacture linoleum, and shares are understood to have been freely taken up by New-Zealanders. At present the building of the factory is pretty well completed, and in a short time the company will be in a position to purchase considerable quantities of kauri chip gradings. It is understood that the company is quite prepared to get into touch with the actual producers and buy direct without the intervention of middlemen. The head office of the company is situated in Post Office Chambers, 333-337 George Street, Sydney.

A representative of the company was in Auckland recently, and was good enough to supply the following details of the manufacture of linoleum. There has hitherto been very little specific information available on the subject, and the details will be of considerable interest to those engaged in the kauri-gum industry.

The Manufacture of Linoleum.

The invention of the manufacture of linoleum was made by Frederick Walton. Like many of our inventions which have led to the industrial progress of the world, that of linoleum was due to an accident. Frederick Walton, standing beside a bench in his mill, chanced to pick up a piece of the "skin" that had formed on some paint, which had been standing for several days. He was immediately struck by its tough, elastic consistency, and subsequently carried out experiments, which resulted in the production of linoleum.

Linoleum is prepared from solid linseed-oil matter, together with rosin, or kauri-gum, to which more than its own weight of ground cork has been added. Linseed-oil intended for linoleum-manufacture must be thoroughly oxidized until it forms a yellow gelatinous mass heavier than water and quite insoluble. The oxidation of the oil is one of the most important steps in the manufacture of linoleum, and there are various methods employed. One device, which is an old one, is to drip linseed-oil previously dried by boiling it with a drier, or by filtering through common salt, on a cotton fabric, hung in a room the temperature of which is kept about 38° centigrade. It takes about twenty-four hours for each layer to solidify. The dropped-off oil is collected and used again. This process continues for about six weeks, and when the solid oil is about $\frac{1}{2}$ in. thick the cloth or skin is cut down. This is known as the "sorim" oil, and the fabric has by this time completely disappeared. By the method just described the oil gains about 8 per cent. in weight, and is fairly elastic. The quick-oxidizing method consists in half-filling a steam-jacketed cylinder with linseed-oil, and driving through it a current of air, while the central shaft, provided with strong arms, rotates at a great speed, aerating the oil thoroughly. The temperature of the steam varies with the nature of the oil to be obtained. After six hours the steam is replaced by cold water, and the oil is run out into trays, in which it solidifies. If a light-coloured oil is required the heating must last twenty-four hours. In order to complete the oxidization the oil is kept in trays at a temperature of 38° centigrade for a week. By this process there is a loss of about 8 per cent., and the oil is not so elastic and liable to spontaneous ignition.

Another process for reducing linseed-oil to a thick mass suitable for mixing with the ground cork for the manufacture of linoleum is achieved by prolonged boiling alone, which causes the oil to polymerize. A considerable portion of the linoleum sold at the present day is made from oil so prepared.

After the solidified oil is obtained, the first step in the manufacture of linoleum is the production of "linoleum-cement." This is accomplished by melting the solidified oil with various gum-resins (usually kauri-gum and rosin) and mixing it with cork, flour, and various pigments and fillers. The composition thus obtained is finally rolled on to the canvas.

A good elastic cement is composed of about 8 $\frac{1}{2}$ cwt. of oxidized oil, 100 cwt. rosin, and 300 cwt. kauri. Sometimes copal is added. Each manufacturer, however, uses his own formula, and this is carefully kept a trade secret. The kauri is pulverized, but the rosin can be used in lumps, since it acts as a flux.

The mixing operation is carried out in a steam-jacketed vessel, provided with stirrers, samples being withdrawn from time to time and tested. It is of the greatest importance that no overheating takes place. When thoroughly mixed the "cement" is run into pans, and, if necessary, artificially cooled, since large masses of this (as well as the oxidized) oil have been known to heat and spontaneously