

# RUBBER FROM DILUTE LATEX

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A series of samples of air-dried sheet was prepared from very dilute latex and the manipulative and water-absorption properties were examined in comparison with those of similar samples of crepe, in order to ascertain whether rubber from much-diluted latex possessed improved properties over normal estate crepe and sheet.

## PLASTICITY

The sheet samples were submitted to the usual plasticity tests and the results given in Table I were obtained.

TABLE I

Sample	Dry Rubber Content of Latex (lb./gall.)	D <sub>30</sub> (mm.)	Mastication No.
B 84/1	1½	1.50	108
B 84/2	¼	1.46	104
B 85/1	1½	1.47	114
B 85/2	¼	1.45	111

The results in Table I show that dilution of the latex has had little effect on the plasticity of these samples. They were tested soon after arrival in London and general experience with regard to the cause of variation in plasticity indicates that, if they had been kept for some time, the air-dried sheet from the very dilute latex would have become soft owing to the reduction in the amount of serum substances which protect the rubber against oxidation. The samples were therefore submitted to an accelerated ageing test by heating in air at 100°C. The results given in Table II shew the effect of this treatment.

These results in Table II shew that the two controls differ markedly in their resistance to oxidation and that the dilution of the latex with consequent removal from the rubber of part of the natural antioxidants decreases this resistance.

TABLE II

Sample	Dry Rubber Content of Latex  (lb./gall.)	D <sub>30</sub>	
		Original  (mm.)	After heating for 17 hours at 100°C.  (mm.)
B 84/1	1½	1.50	0.78
B 84/2	¾	1.46	0.47
B 85/1	1½	1.47	1.39
B 85/2	¾	1.45	0.51

This was confirmed by the examination of the crepe samples. The results of heating at 100°C for 4 and 17 hours respectively are given in Table III.

TABLE III

Sample	Dry Rubber Content of Latex  (lb./gall.)	D <sub>30</sub>		
		Original  (mm.)	After heating for 4 hours at 100°C  (mm.)	After heating for 17 hours at 100°C  (mm.)
A	1½	1.37	0.54	Too soft to test, practically liquid
B	¾	1.28	0.39	do
A <sub>1</sub>	¾	1.25	0.52	do
B <sub>1</sub>	(6 oz.)	1.18	0.49	do
C <sub>1</sub>	¾	1.13	0.49	do
A <sub>2</sub>	1½	1.28	1.08	0.81
B <sub>2</sub>	¾	1.19	0.90	Too soft to test

As in the case of the previous series the control samples (normal dilution) differ somewhat in their resistance to oxidation, and the dilution of the latex definitely decreases this resistance. It is probable that rubber from dilute latex would become soft more quickly on keeping than rubber from latex of normal dilution, but there is no evidence that rubber from dilute latex cannot be stored for quite long periods without serious deterioration.

#### MOISTURE ABSORPTION

Rubber from dilute latex probably contains less serum substances than rubber from latex of normal dilution and should

therefore have a reduced tendency to absorb moisture from a damp atmosphere. As there is a demand from the electrical industries for rubber of this type the samples were submitted to moisture-absorption tests by leaving thin pieces of each sample suspended over a saturated solution of potassium chloride for eight days at 15°C (84.6 per cent relative humidity). The results are shewn in Table IV.

TABLE IV

	Sample	Dry Rubber Content of Latex (lb /gall.)	Amount of Moisture absorbed (per cent)
Series I	B 84/1	1½	0.92
	B 84/2	¼	0.85
	B 85/1	1½	0.82
	B 85/2	¼	0.71
Series II	A	1½	0.65
	R	½	0.50
	A <sub>1</sub>	½	0.51
	B <sub>1</sub>	6 oz.	0.46
	C <sub>1</sub>	¼	0.50
	A <sub>2</sub>	1½	0.65
	B <sub>2</sub>	¼	0.51

In each case the samples from very dilute latex absorb less moisture than those from latex coagulated at the normal dilution, but the difference is much less than that which occurs between "standard" rubber from different estates. It is unlikely therefore that the effect of dilution is sufficiently marked to be of practical importance.

### Summary

Rubber from dilute latex is not more plastic or more easily manipulated than normal estate rubber when tested soon after arrival in London, but artificial ageing tests indicate that dilute latex rubber would probably become softer on keeping for a long period than rubber from latex of normal dilution.

Rubber from dilute latex absorbs slightly less moisture than rubber from normal latex but the difference is not sufficiently marked to be of importance to the electrical industries.

As far as these investigations are concerned rubber from dilute latex offers no important advantages over ordinary estate crepe and sheet.

Kuala Lumpur

3rd March, 1934