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Standard ILRI Waxes for Testing Papers

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Paper manufacturers, printers, lithographers, paper coaters and paper goods manufacturers are interested to know the surface strength of papers before it is put to any use. For this purpose imported standard Dennison Waxes[1,2,3] are used. These waxes have graded adhesive power when applied by melting on papers. One complete series consists of twenty waxes being numbered from 2 to 32. Usually in India Nos. 3 to 14 are used for evaluating the quality of paper produced in the country. These waxes are very important for the paper industry and are required to be imported from U.S.A. at the expense of valuable foreign exchange. Shellac has very good adhesive power. So it was felt desirable to develop some compositions using only indigenous raw material.

It was observed in course of standardisation of sealing wax that incorporation of rosin reduces the adhesive power of shellac. This observation has been made use of in formulating different compositions by varying the proportions of shellac and rosin. In table I, compositions with corresponding number of Dennison Waxes are given.

Experimental

Materials used :

Shellac — I.S.S. No. 16–1956 Grade — Kusmi Handmade Special or A.

Rosin — I.S.S. No. 553–1955 Grade — Pale W.W. or W.G. or Medium — K or M

Mould — made of mild steel — 10 cm × 1.7 cm × 1.7 cm.

TABLE I

Composition of lac standard paper testing waxes

Standard Lac Wax Strength No.	3	4	5	6	7	8	9	10	11	12	13	14
Shellac (%)	24	26	28	30	32	34	36	38	40	42	44	46
Rosin (%)	76	74	72	70	68	66	64	62	60	68	56	54

Method of Preparation

For particular grade of wax required quantities of shellac and rosin in appropriate proportion as per the table I are weighed separately. Rosin is melted in an iron pan, may be, by heating directly on an oven. Shellac in coarsely powdered form is added in small lots to the molten rosin keeping the temperature of the melt at 110° ±5°C and mixed thoroughly till a uniform melt is obtained. The molten mass is poured into the mould. Moulded ' Wax ' block is taken out after cooling the mould to room temperature.

Method of Standardisation

After testing, according to the standard method[4] using Dennison Wax, a set of papers having strength 3 to 14 is prepared. These papers are used for standardising the set of ILRI wax. The sticks of waxes to be tested are marked serially with numbers giving lowest number to the composition having lowest shellac contact. For testing Standard Method[4] is adopted. First three papers with consecutive numbers are taken. One ends of the stick are melted by heating on low flame and pressed on the sheets of paper. After 15 minutes the wax sticks are pulled. Number of the stick is determined by adding one to the number of paper on which it sticks. In this way full series of sticks are standardised.

Method of Testing

Standard method[4] may be adopted for finding out critical wax strength numbers of various papers by using ILRI Waxes.

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