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ENAMELLING ZINC ALLOY DIE-CASTINGS

(Continued from p. 436)

of the media used for the stoved aluminium finishes are given in Table 4.

Two other specific test results are worthy of note. Applied to zinc articles without chemical or mechanical pretreatment, clear lacquers of low consistency of the combination cellulose/glyptal variety, air dried, proved successful. On the 12 months' humidity test they showed no deterioration. This is interesting, because in the first place materials of this nature give exceedingly thin films which are very adherent and show good resistance to ageing. Secondly, these thin lacquer films are markedly more impermeable to moisture vapour than are the thicker coatings of the orthodox clear cellulose lacquers. This superior moisture proofing property, which again bears out the theories put forward, is demonstrated in the figure appearing on p. 436.

The curves given therein were derived in the following manner. Tests were made on the two types of lacquer in double thicknesses applied by spray to 0.0005 in. cellulose acetate film. The latter was selected as the base on account of its high moisture permeability properties. The

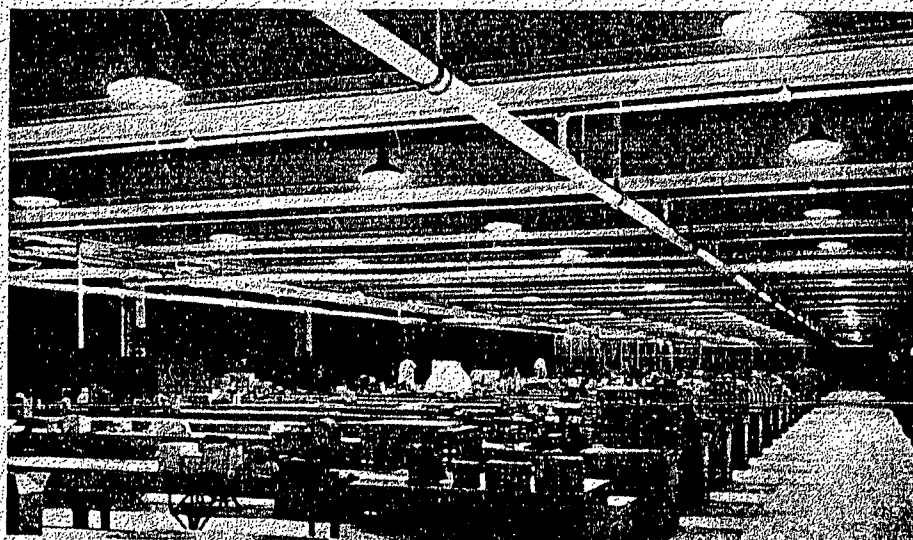
test pieces after allowing a week for thorough air drying were then sealed by means of bitumen on to flanged cups containing absorbent (anhydrous copper sulphate or silica gel). They were weighed and exposed to 100 per cent. humidity, thus setting up a moisture gradient between the two sides of the film. Moisture passing through was determined by reweighing at intervals of time. Normal cellulose lacquers are good with respect to moisture proofing but it will be seen that the combination lacquer is superior, approximately halving the rate of penetration, this despite that, in actual thickness, its film is about one-fourth that of the orthodox material. Average laboratory data, including chemical and physical properties and the composition of the thinners for the combination lacquer are shown in Table 5.

Stoved Glyptal Varnish

The other result of note concerns the stoved synthetic glyptal varnish. While on untreated surfaces this failed completely by softening within four weeks of humidity test, on shot-blasted surfaces it did not deteriorate in hardness or adhesion in a 12 months' test period, although it darkened in colour considerably.

Zinc alloy die-castings are being adopted widely in engineering industries. Accuracy of reproduction by the die-casting process, range of alloys to suit various needs, inexpensiveness, rapidity of fabrication: these factors ensure the advance of their popularity and utility. The automobile industry for door handles, lamp brackets, dash fittings, radiator ornaments, steering wheels, &c., automatic slot machine parts, domestic fittings, handles, curtain accessories, refrigerator and vacuum cleaner components, washing machinery, clocks, electrical components, cine projector items, office equipment: this extended range illustrates their far-reaching possibilities. Consequently, the painting and enamelling problems associated with zinc alloys are likely to confront industrial chemists in many spheres; those to whom the technology of finishing is a full-time study, those with whom it is only one of many chemical processes in engineering, as well as those connected with paint manufacture itself. Consequently, the foregoing, briefly though it deals with the subject, should prove interesting and, it is hoped, informative.

Factory Lighting Installation



A part of the 'dry' building in the new "dry" building of Boots Pure Drug Co. Ltd., 195 Benjamin Saalflux R.L.M. reflectors are installed 200 watt lamps giving an excellent distribution of light over the conveyors.