

SOME SYNTHETIC RESINS FROM FURFURAL.²

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[ABSTRACT.]

WITH the improvement by the Bureau of Chemistry of the processes for the production of furfural cheaply and on a large scale, resins made from it become of economic importance. The optimum conditions for the production of fusible resins suitable for use in varnishes by the condensation of furfural with amines, ketones, and other compounds were determined. It was found that eight of these resins—furfur-aniline, furfur- α -naphthylamine, furfur-o-toluidine, furfur-zylidine, furfur-acetone, furfur-methyl ethyl ketone, furfur-amide, and furfur-sodium hydroxide resins—can be produced from materials cheap enough to make it of practical importance under present conditions. The varnish stains given by these resins in benzene and furfural solutions and their appearance when applied to oak were studied.

² Published in Chemical and Metallurgical Engineering, Vol. 24, No. 15 (1921), pp. 661-663.

On the Gamma Radiation and the Heat Developed by Radium and Mesothorium.—MME. P. CURIE. (*Comptes Rendus*, April 25, 1921.) Radium and mesothorium are isotopic radio-active elements whose separation by chemical processes is impossible. The distinguished Professor of General Physics in the University of Paris, unabashed by the difficulties of the case, seeks a method of determining the relative quantities of the two elements in a mixture contained within a sealed tube.

Each of them gives rise to a series of derivatives, and in the process gamma-rays are given off and heat is evolved. It would be difficult to distinguish one element from the other by the penetrating power of the gamma-rays escaping from a closed tube. The development of heat within the two elements, due to the energy of the alpha-rays, is fortunately not in direct proportion to the gamma-ray radiation. For the same strength of radiation mesothorium sets free less heat than radium does. It is therefore from a study of both the gamma-radiation and of the heat production that a way is devised of calculating how much radium is in the mixture and how much mesothorium.

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