

A TOXICOLOGICAL STUDY OF SOME POLYPROPYLENE (POLYOXYPROPYLENE) GLYCOLS

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POLYMERS of ethylene oxide (polyethylene glycols, polyoxyethylene glycols) enter into a wide variety of industrial applications, including some concerned with foods and pharmaceuticals. Consequently their toxicological properties, particularly those of certain members of the series, have been rather intensively investigated. By contrast, little is known or has been published on the toxicity and pharmacological behavior of the homologous series of propylene oxide polymers, although the literature on propylene glycol itself leaves little to be desired. Actually, a comparison of the two series provides an interesting contrast in the effects which this type of polymerization has on biological activity. Whereas the toxic potentialities of ethylene glycol are great, especially as regards chronic administration, propylene glycol is sufficiently innocuous that it may be employed as a solvent both in food products and in medicaments for internal use. The polyethylene glycols, on the other hand, are materials of a very low order of acute and chronic toxicity, whereas the polypropylene glycols, at least in the lower molecular weight range, exhibit a marked degree of pharmacological activity.

Polypropylene glycols of several molecular weight ranges have been available in drum quantities for a few years. They are finding useful applications—for example, as hydraulic fluid bases and plasticizers. Unless their toxicology is more widely understood, there is a possibility that their physical properties will lead to such applications that ingestion may result in injury to the public health.

Derivatives of the polypropylene glycols have been reported to be effective as fly repellents on livestock.¹ The only other literature on the biological properties of these compounds are brief accounts by Shideman and Moe² and by Procita and

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1. Granett, P.; Haynes, H. L.; Connola, D. P.; Bowery, T. G., and Barber, G. W.: Two Butoxypolypropylene Glycol Compounds as Fly Repellents for Livestock, *J. Econ. Ent.* **42**:281-286, 1949.

2. Shideman, F. E., and Moe, G. K.: Production of Ventricular Extrasystoles in the Dog by a Polypropylene Glycol, *Federation Proc.* **8**:332, 1949.