

**RJR****Scientific & Regulatory Affairs****Interoffice Memorandum****To:** Glenn Creamer**Date:** November 8, 1994**From:** Steve Sohn**Subject:** Brute Container #2620

Scientific & Regulatory Affairs **approves the use of Brute Container #2620** for bulk recycling of bobbin cores on the manufacturing floor. Brute Container #2620 is made of high density polyethylene (HDPE), and manufactured by Rubbermaid Commercial Products, Inc. Product contamination is fairly unlikely since the containers are one piece and appear to be well constructed. However, containers should be inspected regularly for damage and replaced if necessary to minimize product contamination.

Polyethylene is a polymer of very low toxicity. Acute oral doses of 8 g/kg or 90-day feeding studies of polyethylene (5% of dietary intake) produced no adverse effects in rats (Clayton and Clayton, Patty's Industrial Hygiene and Toxicology, 1981). Mice given 2.5 g/kg orally showed no toxic effects. Polyethylene has been approved for direct food contact (21 CFR 175.300, 177.1520). During thermal degradation of polyethylene at 800°C, carbon monoxide is the principle gas evolved. At temperatures below 500°C, CO<sub>2</sub>, acrolein, formaldehyde, other aldehydes, ketones and hydrocarbons are generated. Acrolein is the most acutely toxic compound generated. It is an irritant to the eyes and respiratory tract at 5 ppm and can be lethal at 10 ppm after several hours. Pyrolysis of small quantities of polyethylene will liberate such minute quantities of acrolein that no adverse health effects would be expected. The American Conference of Governmental Industrial Hygienists (ACGIH) has set the threshold limit value (TLV) for acrolein at 0.1 ppm.

Please call immediately, if questions or concerns arise



E. J. (Steve) Sohn

Tel.: 741-4134

Fax: 741-0815



Carolyn A. Rahn, M.S., D.A.B.T.

R&D Toxicologist

cc:

R. L. Suber

D. C. Rees

J. A. Seckar

SRA correspondence file

V. M. Chandler

D. I. Gramley

J. W. Nelson

51246 1086