The Connection Between Plastic and Breast Cancer

Plastic	Breast Cancer Fund Rating	Link to Breast Cancer		Explanation	Source of Exposure in Consumer Products
		Carcinogen By-product of Manufacturing[i, ii]	Hormone Disruptors Can Leach Out[iii]		
#1 PET PETE Polyethylene terephthalate ethylene	OK				Soft drink, juice, water, detergent and cleaning product bottles
#2 HDPE High density polyethylene	OK				Opaque plastic milk and water jugs; bleach, detergent and shampoo bottles; some plastic bags
#3 PVC Polyvinyl chloride	Avoid	X	X	Vinyl chloride and dioxin, both known human carcinogens (NTP and IARC), are formed in manufacturing; dioxin is also a hormone disruptor; hormone disrupting phthalates can leach out of PVC.	Cling wrap; some plastic squeeze bottles; cooking oil, detergent and window cleaner bottles; toys; vinyl shower curtains; wall and floor coverings
#4 LDPE Low density polyethylene	OK				Grocery store bags, most plastic wraps, some bottles
#5 PP Polypropylene	OK				Most reusable food-storage containers; straws; syrup, yogurt and other other clouded plastic containers; some baby bottles
#6 PS Polystyrene	Avoid	X		Styrene can leach from polystyrene, is an animal mammary carcinogen and is possibly carcinogenic to humans (IARC).	Styrofoam food trays, egg cartons, disposable cups and bowls and carryout containers; opaque plastic cutlery
#7 Other Usually polycarbonate	Avoid		X	Hormone-disrupting bisphenol A can leach from polycarbonate under heat and pressure or as plastic ages.	Most plastic baby bottles, 5-gallon water bottles, "sport" water bottles, metal food can liners, clear plastic "sippy" cups, dental sealants, some clear plastic cutlery

Note: Portions of table above based on Smart Plastics Guide: Healthier Food Uses of Plastics, Institute for Agriculture and Trade Policy, www.iatp.org/foodandhealth

i. Silent Spring Institute's Science Review published in Cancer in 2007 includes information on 216 animal mammary gland carcinogens. www.sciencereview.silentspring.org

ii. International Agency for Research on Cancer (IARC) carcinogenic risk classification is based on evaluation of potential tumor development at all sites, not only breast/mammary tissue. Categories include: Known, Probable, Possible and others. The National Toxicology Program (NTP), within the National Institute of Environmental Health Sciences of the National Institutes of Health, provides carcinogenicity ratings based on scientific evidence in both animals and humans. Categories include: Known, Reasonably Anticipated, and others. (Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program.) Not all chemicals have been rated by IARC or NTP.

iii. To date, neither the NTP nor IARC has classified most endocrine disruptors as carcinogens in humans. List of endocrine disruptors from: Brody JG, Rudel RA (2003). Environmental pollutants and breast cancer. Environmental Health Perspectives 111: 1007-1019.