



## HOW TO CHARACTERIZE WASTE XYLENE USED TO PREPARE TISSUE DIAGNOSTIC SLIDES

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### PURPOSE.

This document provides the rationale for characterizing waste xylene from preparing tissue diagnostic slides as a characteristic ignitable waste identified by the hazardous waste code D001.

### POINTS OF MAJOR INTERST AND FACTS.

#### What Medical Facilities and Processes Generate the Waste?

Histology and Cytology laboratories convert human tissue specimens into diagnostic slides for microscopic medical examinations and diagnoses. During slide production, the process applies a thin microscopic section of tissue specimens to slides for medical diagnoses. The slide production process involves multiple procedures and numerous chemicals that include formalin, ethanol (various concentrations), xylene, various stains, and paraffin. Xylene is used to displace ethanol from the tissue, then paraffin wax displaces the xylene and fixes the tissue.

#### What Hazardous Waste Codes Apply to Waste Xylene?

The U.S. Environmental Protection Agency (USEPA) categorizes hazardous waste (HW) as either *characteristic* or *listed*. A characteristic HW is not identified in Federal regulation specifically by name, use or generating process but is ignitable, corrosive, toxic, or reactive. A listed HW is identified in Federal regulation list specifically by name, use, or generating process. The F List is the Nonspecific Source List. In order for a chemical to meet the criteria for an F001–F005 HW, it must be a used, spent solvent. Depending on how the xylene was used before it became a waste, xylene hazardous waste can be either a characteristic ignitable waste, D001, or a spent solvent waste, F003.

### **Is Waste Xylene from Tissue Processing a Characteristic or Listed HW?**

The correct HW category is ignitable characteristic HW, code D001. When addressing the topic of spent solvents in the November 17, 1981 Federal Register (46 FR 56584), the USEPA stated, "The same substances may also be used in a manufacturing process as chemical reactants or process intermediates, and when so used, are not considered to be spent solvents."

The December 31, 1985, Federal Register (53 FR 53316) specifies that, "the spent solvent listings apply only to those solvents that are used for their solvent properties, that is to solubilize (dissolve) or mobilize other constituents." The USEPA further specified in (50 FR 53315-53317) that process wastes in which solvents were used as reactants or ingredients in the formulation of a commercial, chemical product are not covered by the F001-F005 listings. The xylene used in tissue fixing is a process intermediate, not a spent solvent.

#### **Point of Contact**

For more help, contact the APHC Waste Management Program at 410-436-3651.

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