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HOTLINE QUESTIONS AND ANSWERS

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1. Isomers of P- and U-Listed Wastes

The P and U lists at 40 CFR 261.33(e) and (f) identify chemicals which, when discarded as unused commercial chemical products, are listed hazardous wastes. If a particular P- or U-listed chemical has many isomers, are those isomers listed hazardous wastes as well?

Many chemicals on the P and U list have multiple isomers. Isomers are compounds made up of the same atoms in the same proportions, but which have different chemical structures and potentially different chemical properties. These different forms of a chemical can be identified precisely and given unique Chemical Abstract Service (CAS) numbers. For example, toluenediamine (C₇H₁₃N₂) may have many isomers, including toluene-2-4-diamine (CAS#95-80-7) and toluene-2-6-diamine (CAS#823-40-5), that differ structurally. Chemicals also may be identified as "mixed isomers." Mixed isomers include all mixtures of individual isomers of a compound. For instance, the generic mixed isomer designation of toluenediamine (CAS#25376-45-8) includes mixtures of the isomers toluene-2-4-diamine and toluene-2-6-diamine.

EPA may choose to include all isomers of a chemical on the P or U list by listing the mixed isomer or generic name of the compound. If the generic mixed isomer name and CAS number of a compound appear on the P or U lists, then any individual isomers of that compound and all mixtures of isomers of that compound meet the listing description. Thus, when discarded in its commercial chemical product form, the isomer toluene-2-4-diamine (CAS#95-80-7) is a listed hazardous waste, because the generic mixed isomer toluenediamine (CAS#25376-45-8) is listed as U221.

EPA may also choose to designate only specific isomers of a chemical as P- or U-listed hazardous wastes. When a particular isomer is designated, then only that isomer is covered by that particular listing. For example, U140 covers isobutyl alcohol (CAS#78-83-1), an isomer of butanol. Since the U140 listing includes only isobutyl alcohol, other isomers of butanol are not U140 (although they may be listed elsewhere).