Richard Wasserstrom, Esq.
American Forest & Paper Association
1111 Nineteenth Street, NW, Suite 800
Washington, DC 20036

Dear Mr. Wasserstrom:

I am responding to your inquiry regarding the regulatory status of crude sulfate turpentine (CST) under the Resource Conservation and Recovery Act (RCRA) regulations, when CST is burned for energy recovery. We have reviewed the information you have submitted, as well as other information available to the Agency, and have determined that crude sulfate turpentine is a commercial chemical product which is itself a fuel, and therefore is not a solid waste (and hence not a regulated hazardous waste) when it is burned for energy recovery**.** As explained more fully below, we base this conclusion on 40 CFR 261.33 (final phrase before (a)), the preamble discussion found at *50 FR 14219* (April 11, 1985), and 40 CFR 261.2 (c)(2)(B)(ii).

Background

Crude sulfate turpentine is produced during the Kraft wood-pulping process, where wood chips are "cooked" in digesters with a water solution of sodium hydroxide and sodium sulfide (white liquor) under pressure and heat. This process separates the cellulose fibers, which are later used to make paper, from the "glue" or lignin holding the fibers together. The pulping process also recovers organic materials that are naturally present in wood, known as "extractives," such as turpentine and tall oil. Specifically, several low molecular weight organic compounds are driven off the digesters during the pulping process, and are recovered in the condensers, decanters, and tanks comprising the turpentine recovery system.

Crude sulfate turpentine is extracted from wood during the pulping process and collected and sold as a raw material. Buyers generally specify moisture and sulphur content for the turpentine they purchase. Crude sulfate turpentine consists of organic compounds, principally alpha-pinene and beta-pinene, which are of particular commercial value, and other terpenes including carenes and dipentenes. Crude sulfate turpentine is often sold as a commodity to other manufacturers, who use the CST as a feedstock to produce pinenes, polymer additives, flavorings, fragrances, pine oil, and oil of turpentine. When market forces dictate (i.e., when prices for other CST uses become uneconomic), the CST is often used as a fuel, generally at the facility where the CST is produced.

Use of Crude Sulfate Turpentine as Fuel

Our review of information provided by the American Forest & Paper Association (AFPA) and other sources shows that, while not a widely used commercial fuel today, turpentine has an established history of use as a commercial fuel source, and can still be used (and is used) to replace more traditional fossil fuels. Turpentine has been manufactured and used as a commercial fuel dating back to the 1700's, in applications such as lamps ("burning fluid"), and more recently in rocket fuels, and in industrial boilers and furnaces. While generally burned on-site for energy recovery, CST has also been sold to off site facilities for use as a fuel in boilers. CST has a heating value of approximately 17,000 to 19,000 Btu/lb, which is comparable to other fuels such as gasoline, diesel, and propane (approximately 18,000 to 20,000 Btu/lb). Wood, from which CST is derived, has a heating value of approximately 7,000 - 10,000 Btu/lb.

We conclude that CST extracted from wood chips during the pulping process is a commercial chemical product that is itself a fuel. We base this conclusion on CST's fuel value and longstanding historical usage as a fuel. CST is therefore not a solid waste when burned for energy recovery (in other words, as a fuel). The regulatory provisions that dictate this result are found in 40 CFR section 261.33, which states that the commercial chemical products listed in that section whose original intended use is as a fuel are not wastes when burned as fuels; section 261.2(c)(2)(B)(ii) which states that "commercial chemical products listed in section 261.33 are not solid wastes if they are themselves fuels," and *50 FR 14219* (April 11, 1985) which applies the same jurisdictional principles to commercial chemical products exhibiting a characteristic as to those which are listed in 261.33. The result is, that if a commercial product which exhibits a characteristic and is a fuel (like CST) is burned for energy recovery, it is not a solid waste.

We also note that in the rulemaking establishing the comparable fuels exclusion (40 CFR 261.38), EPA rejected using turpentine as a so-called benchmark fuel, i.e. one whose hazardous constituent levels are appropriate for use in establishing the comparable fuel specification. See 63*FR* 33782, 33785 (June 14, 1999). EPA believes that determination remains sound, and is consistent with our determination here that CST burned for energy recovery is a fuel, not a solid waste. Not all fuels are suitable benchmarks for comparable fuels, notwithstanding that the materials are indisputably fuels (coal being an example). For the comparable fuels specification, EPA wished to use as benchmarks fuels that are widely used and reasonably representative of hazardous constituent levels. Id. Since CST is not widely used as a fuel, EPA did not (and does not) believe it is suitable as part of the benchmark specification. However, for the reasons given above, EPA believes (and applicable rules support) that CST nonetheless should be considered to be a fuel, rather than a waste, when burned for energy recovery.

We note that in this letter we are referring to CST in the form it is generated. We are not referring to turpentine that includes any non-indigenous materials that may be added to turpentine after it is produced in the wood pulping process.

CST as generated contains sulfur in several different forms including hydrogen sulfide. Hydrogen sulfide can pose significant health risks if it is improperly handled. Material Safety Data Sheets (MSDS) for other fuels and commercial chemical products, such as asphalt, include information about these risks. Where there is a concern, EPA suggests that similar warnings be

placed on MSDSs for CST, especially if this product is to be stored on-site for any length of time or is to be shipped off-site to other facilities. In addition, when CST is used as a fuel, compliance with appropriate limitations on emissions of sulfur oxides should be ensured. (See OSHA Hazard Information Bulletin, Fire Hazard From Carbon Adsorption Deodorizing Systems, July 30, 1997.)

Please note that under the federal Resource Conservation and Recovery Act (RCRA) program, authorized states may have more stringent regulatory requirements than the federal program. Accordingly, you should consult your state regulatory authorities concerning the regulations applicable to this material in a particular state.

If you have questions, please contact Kristina Meson of my staff at (703) 308-8488.

Sincerely,

Elizabeth Cotsworth, Director
Office of Solid Waste

cc Steven Silverman
Office of General Counsel