UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Katy Wolf, Ph.D
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Dear Dr. Wolf:

This is a follow up to our response to your letters of March 15, 1994 and June 24, 1994 regarding the regulatory status of foam materials made from the use of chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs) as blowing agents.

I have enclosed an information sheet which responds to your questions about federal regulations of hazardous wastes under the Resource Conservation and Recovery Act (RCRA).

Please be aware that some states may have regulations that are more stringent than those of the federal government. You may wish to consult those states to find out the nature of their regulations.

I hope this information is helpful to you. Thank you for your interest in the environment.

Sincerely,

Elizabeth A. Cotsworth

for Michael Shapiro, Director
Office of Solid Waste

Enclosure

Faxback 14323

INFORMATION SHEET

1) Does EPA consider CFC blowing agents to be hazardous waste and under what conditions (recycling, destruction, etc.)?

ANSWER: Foam products containing CFCs used as blowing agents are not listed hazardous wastes; spent liquid CFCs used as a solvent (and not entrained in foam product) are listed hazardous wastes if the solvent is one of two CFCs, namely trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane. If the foam is being discarded, the generator does need to determine whether the foam exhibits one of the four hazardous waste "characteristics" such as ignitability, corrosivity, reactivity, and the toxicity characteristic. There are no CFCs on the list of constituents the toxicity characteristic requires be evaluated.

EPA considers two CFC blowing agents to be listed hazardous waste when they are used as a solvent and are subsequently spent; they are not a listed hazardous waste if solely used as an ingredient not used for solvent properties, such as a physical blowing agent.

In a letter to you from Devereaux Barnes (dated February 26, 1990), the Agency stated that opening the foam cell by physical mechanism does not constitute solvent use. While it is true that CFCs used only in such a fashion are not spent solvents, these substances may be considered hazardous waste if they are the medium in which the foam blowing reaction takes place (meaning that the CFCs are used for their solvent property). Where two specific CFCs (trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane) are used as reaction media and as a result are not fit for reuse without some kind of regeneration or recovery, they are considered to be F002 spent solvents and thus are "listed" hazardous wastes (See 40 CFR 261.31 and 50 FR 53316, December 31, 1985.)

A listed hazardous waste will generally be subject to RCRA regulations whether recycled or disposed of and must be managed in compliance with RCRA hazardous waste regulations.

You should be aware that while the hazardous waste listing applies to spent CFCs used in the production of these foam products, it does not apply to the small amounts entrained in the foam once the foam is in the assembled product. Neither these products nor the entrained CFC material would be considered solid wastes according to 40 CFR 261.2 (since their incorporation into foam used in refrigerators would not be use constituting disposal). If the foam materials (which you describe in your letter as insulating foam in refrigerators) or the refrigerators containing the foam are discarded, they would not be considered listed hazardous waste even if a small amount of unevaporated

CFCs is entrained in the foam from production. The reason they would not be considered listed hazardous is because the product is not a spent solvent and because recapturing the CFC in a discarded finished product (e.g., a refrigerator) is not generation of a spent solvent. However, the generator (assuming it is a commercial facility, not a household) must still determine if the discarded material exhibits a characteristic of hazardous waste as defined in 40 CFR 261.21 - 261.24 (i.e., ignitability, corrosivity, reactivity, or the toxicity characteristic). If the discarded material is determined not to exhibit a characteristic of hazardous waste and is not mixed with or does not contain any other hazardous waste, it is not a hazardous waste.

2) If these substances are hazardous wastes, what types of processing would constitute treatment and require a RCRA treatment permit (removal from foam, incineration)?

ANSWER: For wastes that are considered hazardous, any treatment, storage, and/or disposal of the wastes would require a RCRA permit (other than storage or treatment at the site of generation in tanks meeting the definition of 90-day generator tanks, according to 40 CFR 262.34). "Treatment" is defined in the RCRA regulations at 40 CFR 260.10 as "any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as neutralize any waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume." Generators of such hazardous wastes are required to comply with all applicable generator standards if their total hazardous waste generation is at least 100 kilograms per month, according to 40 CFR 262. Shipment of hazardous wastes to a permitted treatment facility requires a manifest. Finally, RCRA requires that hazardous wastes meet treatment standards according to Land Disposal Restrictions (40 CFR 268) before any land disposal is allowed.

3) Are HCFC and HFC solvents, refrigerants, and blowing agents considered by EPA to be hazardous wastes and what actions constitute treatment of them?

ANSWER: CFCs (which include HCFCs) that are used as degreasing agents are considered F001 hazardous waste (spent halogenated solvents used for degreasing under 40 CFR 261.31). The HFC chemicals, since they are not specifically listed in the F001 listing description, would not be considered F001 spent solvents if used for degreasing purposes. HCFCs and HFCs would be considered hazardous wastes under other circumstances (e.g., when used as refrigerants and blowing agents, as your question stated) if the waste generated exhibited a characteristic of hazardous

waste as defined in 40 CFR 261.21 - 261.24 or if mixed with or containing another listed hazardous waste. An exception to this is that under 40 CFR 261.4(b)(12), used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment (i.e., air conditioning and refrigeration systems) are not hazardous wastes when recycled, as long as the refrigerant is reclaimed for further use. The CFCs and HCFCs, when used as heat transfer fluids, are eligible for this exclusion. If any of these materials, when otherwise discarded, spent, or recycled, are hazardous wastes, any kind of management is considered subject to RCRA hazardous waste regulation. Since HFCs are not "chlorofluorocarbons," they are not eligible for the 40 CFR 261.4(b)(12) exclusion.