NATUR VÅRDS VERKET
SWEDISH ENVIRONMENTAL PROTECTION AGENCY

INFORMATION FACTS
CFC IN BUILDING AND DEMOLITION WASTE
MAY 2016

Insulation material may be hazardous waste

Building insulation materials may contain CFCs, and is therefore classified as hazardous waste after demolition. Examples include foams that may be components in foam ground sheets, wall insulation, floating floors, and cold storage rooms. Foams have also been used for insulation of district heating pipes.

All waste having a CFC content exceeding 0.1 per cent, shall be treated as hazardous waste (Regulation (EC) No 1272/2008). This waste must be identified, sorted, handled separately, and transported by operators with permits for transporting hazardous waste. The waste shall only be taken to facilities that have the necessary permit to treat it. Investigations show that only approximately ten percent of demolition waste containing CFC is currently treated properly.

CFC-CONTAINING INSULATION (WASTE CODE 17 06 03*)

The two most common insulation materials containing CFCs are PUR (polyurethane) and XPS (extruded polystyrene). They are most often affixed on or enclosed in other material. PUR can also be sprayed into building components or as part of foam joint filler.

These materials have a solid cross-section, as opposed to EPS boards (e.g. Styrofoam), whose cross-section has visible small beads. PUR insulation is often yellow in colour, and is used in sandwich panels in ground sheets, cold storage rooms, ceilings, roofing, and around piping systems. Insulation is often clad in metal or glued with bitumen-based adhesives, which was very common during the 1970s. XPS sheets vary in colour and were most often used in ground or basement insulation. But these have also been used in attic spaces. When you are unsure, a laboratory analysis can determine whether the material contains CFCs.

EXTENSIVE ENVIRONMENTAL IMPACT

CFC containing material in buildings is the largest emission source of ozone depleting substances in Sweden. CFCs are also powerful greenhouse gases. Leakage occurs during the life of the building, but accelerates during demolition. Every year an estimated 72 tonnes of CFC substances from buildings and demolition waste is treated incorrectly in Sweden. This equals the annual greenhouse gas emissions of a medium-sized Swedish city.

INFORMATION FACTS

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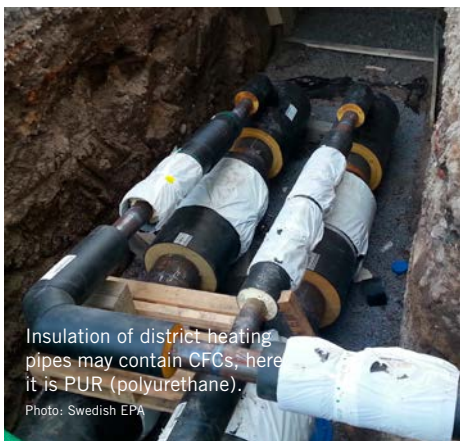
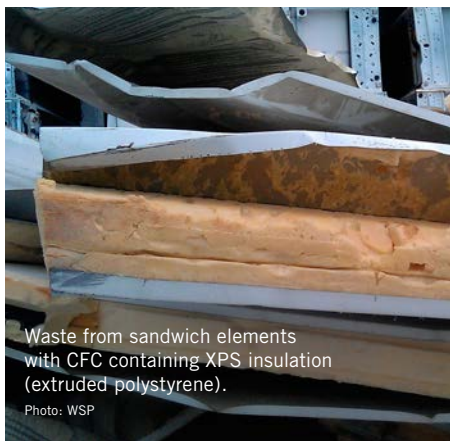
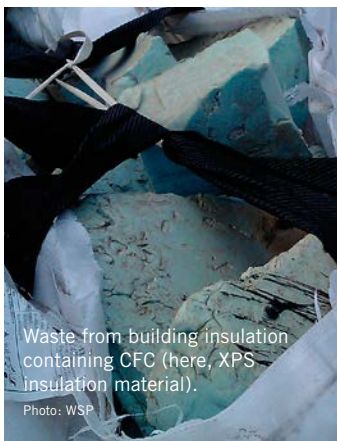

Insulation of district heating pipes may contain CFCs, here it is PUR (polyurethane).
Photo: Swedish EPA


Waste from sandwich elements with CFC containing XPS insulation (extruded polystyrene).
Photo: WSP


Waste from building insulation containing CFC (here, XPS insulation material).
Photo: WSP

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TREATMENT:

One reason why CFC containing waste is treated incorrectly is because it is often hidden and hard to identify. Another reason is misleading separation instructions, which may, for example, state that foams shall be sorted as combustible waste. While this may be correct for Styrofoam, it is not so for insulation materials containing CFCs. Regulations regarding management of hazardous waste are primarily found in the Environmental Code and the Waste Ordinance.

Identification: CFC containing material shall be identified in a predemolition audit. To determine whether sampling is needed a portable 'sniffer' can be used. This requires that a small portion of the material is broken up to reveal the pores. Holes can be made in walls, ceilings, or floors to find composite materials. If uncertain take a sample for analysis, or simply treat it as hazardous waste containing CFCs.

Demolition: Insulation material containing CFCs must be treated separately and managed carefully to ensure it is not broken apart. Decontamination of material hidden in components may need to be done in stages as building parts covering the material are dismantled. In order to treat insulation correctly, composite material may need to be separated. First, contact the facility where the waste will be sent in order to determine what requirements they have for managing it. If necessary, and possible, the material should be separated at the demolition site. Damage to the waste should always be minimised.

Transport and destruction: Primarily CFC containing waste should be sent for destruction. Landfilling should be avoided since CFCs will continue to leak to the environment. If the CFC containing demolition waste is intact it is not necessary to store it weatherproofed.

CFC containing demolition waste must be transported either to a recycling facility or to a waste incineration plant that has a permit to recycle/incinerate this kind of hazardous waste "17 06 03* Other Insulation materials consisting of or containing hazardous substances". There are facilities in Sweden that recycle and destroy construction waste that contain CFCs. The recycling facilities that manage hazardous waste containing CFC from demolition separate and extract the CFC, which is then sent for destruction.

KEEP IN MIND
Transport and destruction of oversized demolition waste such as CFC containing building components involves expenses. When renovating and demolishing, it is important that the developer ensures that costs for proper treatment are included in the total budget of the renovation or demolition project.

MORE INFORMATION

The Swedish EPA web guide: HANTERING AV CFC-HALTIGT FARLIGT AVFALL VID RIVNING OCH OMBYGGNAD.

DOWNLOAD THE APP "FARLIGT AVFALL".

All hazardous waste, even small quantities, shall be collected and treated correctly. Using the 'FARLIGT AVFALL' app, you can quickly and easily find out how CFC containing building material and other types of hazardous waste shall be treated.

The app is distributed by the Swedish Construction Federation. You can download the app from the App Store or Google Play.

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