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CARE GUIDANCE

RECOMMENDATIONS ON BEST PRACTICE

LEVEL 3

Waste disposal

WASTE DISPOSAL

INTRODUCTION

This is a level 3 document in the ECFIA CARE Guidance series and should be read in conjunction with the level 1 document: "Working with HTIW – Effective Risk Management".

Where there are activities involving HTIW materials and products inevitably there are waste streams. It is essential that this waste is handled and disposed of properly. This guidance provides some examples of how such HTIW waste should be handled to minimise fibrous dust generation.

WHAT IS THE CARE PROGRAMME?

ECFIA's Controlled And Reduced Exposure (CARE) Programme is an important part of the Product Stewardship Programme. It allows employers to proactively minimize fibrous dust exposure and thus protect workers' health.

WHAT ARE THE CARE GUIDANCE DOCUMENTS?

These documents form a comprehensive library of information on the safe handling and use of HTIW products. They have been written by industry experts and are designed to give customers of ECFIA members helpful information to put in place effective controls to minimise exposure to airborne fibres. This series of documents will progressively grow as new documents are produced.

Level 1 guidance document: "Working with HTIW - Effective risk management"
Level 2 guidance documents: Risk management measures applicable to HTIW
Level 3 guidance documents: Examples of specific applications

BACKGROUND

Activities involving the production and use of HTIW materials and products inevitably produce waste. It is essential that this waste is handled and disposed of properly.

This document deals with waste occurring in the production and in the processing of raw material into insulation products. Waste resulting from maintenance or removal operations is dealt with in the CARE guidance documents "Maintenance" and "Removal".

In this document, HTIW waste includes:

- Off-cuts from finishing processes
- Fibrous dust coming from air cleaning devices
- Fibrous dust arising from housekeeping activities
- Sludge from wet processing

In addition, certain other items may become contaminated by trace amounts of HTIW dust and will need to be disposed of appropriately, for example:

- Empty paper bags and plastic bags
- Protective clothing
- Individual items of protective equipment (masks, gloves, etc.)
- Used filter bags from dust collectors

CLASSIFICATION OF WASTE

There are three main types of HTIW:

- Alumino silicate wool (ASW), also called Refractory Ceramic Fibre (RCF), classified as a category 1B carcinogen and therefore hazardous
- Alkaline earth silicate (AES) wools are not classified as hazardous
- Polycrystalline wools (PCW) are not classified as hazardous

Because of its classification, ASW waste is considered hazardous and must be handled and disposed of according to the Waste Framework Directive (2008/98/EC). In the EU, ASW waste arising from the production process must be sent to specific landfill sites for hazardous waste, or it can be reprocessed/recycled within the manufacturing or conversion process. AES wool and PCW can be treated as non-hazardous waste.

SEGREGATION OF WASTE

It is good practice to separate, as far as is possible, ASW waste from other wastes including other HTIW waste. Any waste load containing >0.1% w/w ASW will be deemed to be hazardous waste and must be disposed of as such at a designated hazardous waste site. Waste containers (closed skip, plastic bags, big bags, etc.) must be labelled to indicate the nature of the waste and the hazard.

HANDLING OF WASTE

The handling of fibrous waste material can produce high levels of airborne fibrous dust because it is not always practically possible to carry out such activities under controlled conditions (e.g. using Local Exhaust Ventilation (LEV)). **All manual handling of HTIW waste should be carried out under controlled conditions by trained personnel wearing appropriate Personal Protective Equipment, including respiratory protective equipment, especially if the waste contains ASW.**

All containers (wheelie bins, plastic bags, big bags etc.) must be kept closed to prevent the release of fibrous dust.

Where possible, waste receptacles should be placed under local extract ventilation, for example an extract hood, to prevent any fibrous dust release into the workplace air when adding waste to the container.

Some examples:

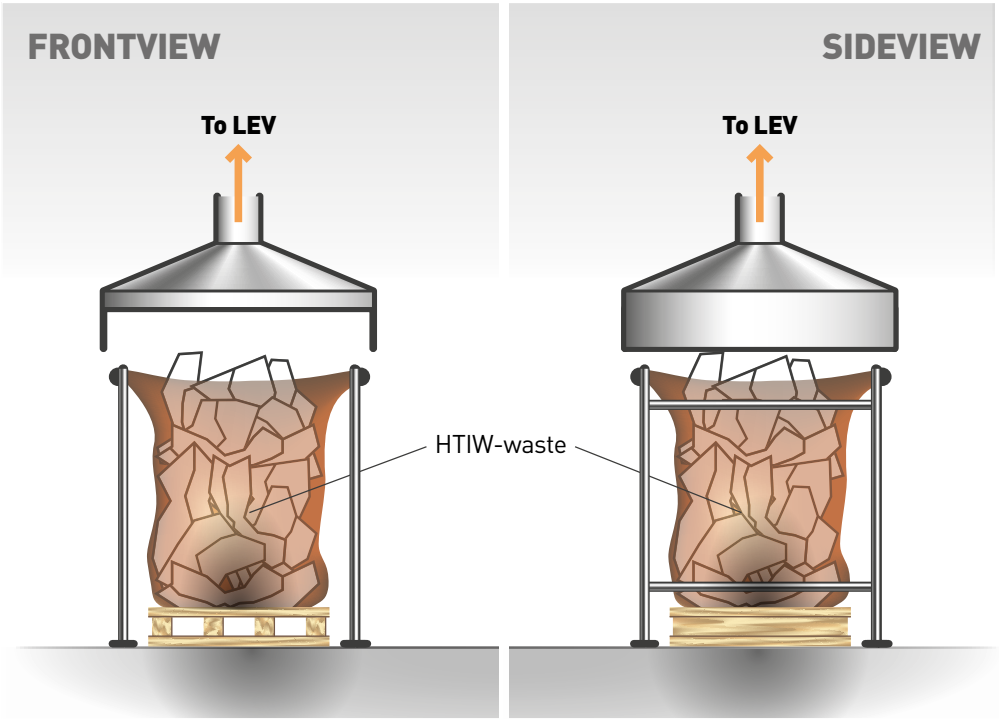

Fig. 1: LEV Hood above a Big Bag for HTIW-waste

Fig. 2: Press for empty bags with LEV capture device (slot extraction) linked to LEV system

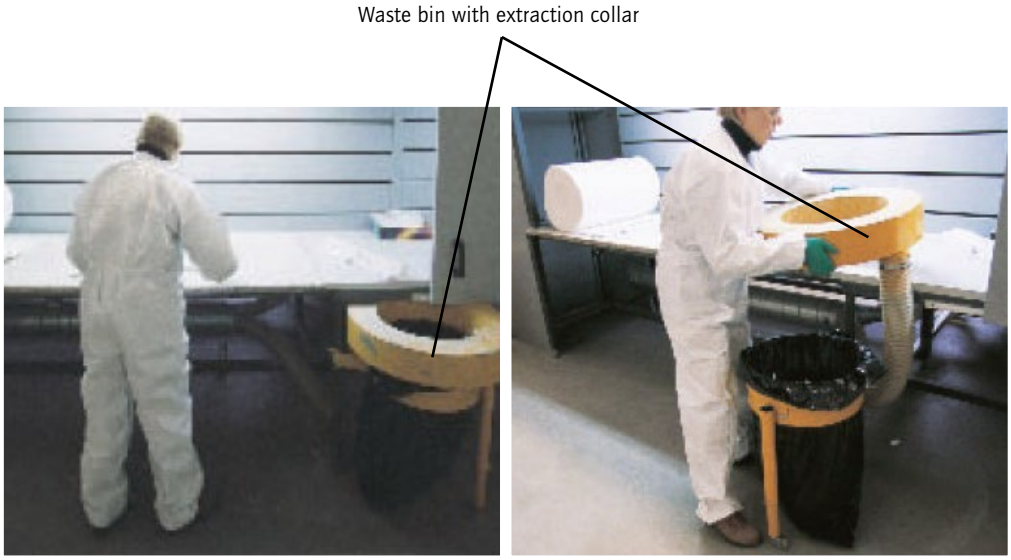

Fig. 3+4: Bin for off-cuts in finishing tasks. In case of handling ASW/RCF person needs to wear a mask (appropriate PPE).

Fig. 5: Wheelie bin (waste container)

In general, the full waste containers are placed into a large skip before being sent out. To prevent any fibrous dust release, the waste should be enclosed in a plastic bag or in big bags.

DETERMINING APPROPRIATE WASTE CODE FOR DISPOSAL

Waste codes are contained in the EU list of waste; the waste codes are based on the origin of the waste.

See Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (also referred to as the Waste Framework Directive or WFD) and the List of Waste 2000/532/EC as amended by Commission Decision 2014/955/EU (also referred to as LoW).

Disposal in landfill is regulated by the **COUNCIL DECISION 2003/033 of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills.**

Examples of waste streams associated with specific uses and the appropriate waste codes:

Activity	Type of waste	Waste code	Description
Waste from mixing activities Here the wastes are mainly emptied bags and/or sludge from on-site water treatment plants	Waste containing >0.1% ASW	06 05 02*	sludges from on-site effluent treatment containing dangerous substances
Waste from mixing activities Here the wastes are mainly emptied bags and/or sludge from on-site water treatment plants	Waste containing >0.1% ASW	15 01 10*	packaging containing residues of or contaminated by dangerous substances
Waste from mixing activities Here the wastes are mainly emptied bags and/or sludge from on-site water treatment plants	Waste containing >0.1% ASW	16 10 03*	aqueous concentrates containing dangerous substances
Waste from mixing activities Here the wastes are mainly emptied bags and/or sludge from on-site water treatment plants	Waste containing non hazardous HTIW	15 01 06	mixed packaging
Waste from finishing activities in module manufacturing (all dry process to transform HTIW product): • Off-cuts, Products not conforming to quality standards and specifications. • Fibrous dust from dust collectors and housekeeping activities. • Used filter bags. • Personal protective equipment contaminated by ASW.	Waste containing >0.1% ASW	15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
Waste from finishing activities in module manufacturing (all dry process to transform HTIW product): • Off-cuts, Products not conforming to quality standards and specifications. • Fibrous dust from dust collectors and housekeeping activities. • Used filter bags. • Personal protective equipment contaminated by ASW.	Waste containing >0.1% ASW	16 03 03*	inorganic wastes containing dangerous substances
Waste from finishing activities in module manufacturing (all dry process to transform HTIW product)	Waste containing non hazardous HTIW e.g. PCW	16 03 04	inorganic wastes other than these cited in 16 03 03*
Waste from finishing activities in module manufacturing (all dry process to transform HTIW product/maintenance activities/removal activities containing ASW).	Waste containing >0.1% of hazardous chemical substance	17 06 03*	other insulation materials consisting of or containing dangerous substances
Waste from removal activities	Waste containing ASW or HTIW possibly contaminated by other hazardous substances such as heavy metals	16 11 03*	other linings and refractories from metallurgical processes containing dangerous substances
Waste from removal activities	Waste containing ASW or HTIW possibly contaminated by other hazardous substances such as heavy metals	16 11 05*	linings and refractories from non-metallurgical processes containing dangerous substances
Waste from removal activities	Waste containing HTIW <0.1% ASW	17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03
Waste from conversion	Waste containing AES wools	10 11 03	glass based fibrous waste products

Admittance of HTIW waste to landfill using the different waste codes is determined by local regulations and guidelines which need to be respected.

*hazardous waste

SUMMARY

As ASW/RCF waste streams are considered hazardous waste, they should as far as is reasonably possible be segregated from other wastes including other HTIW wastes. Hazardous waste disposal/treatment is specific and the local regulatory bodies should be consulted prior to disposal to ensure the correct procedures are followed.

Waste should be handled by trained personnel under controlled conditions. Waste should be placed into suitable containers (closed skip, plastic bags, big bags, etc.), which can be sealed. All waste containers must be labelled to detail the nature of the waste substance and should include the appropriate hazard signs.

FURTHER INFORMATION

CARE Guidance Documents

Level 2: "Local Exhaust Ventilation (LEV) Systems for High Temperature Insulation Wool (HTIW)"
Level 3: "Removal of HITW Materials"
Level 3: "Maintenance and Repair Operations"

Links:

- www.guidance.ecfia.eu
- www.hse.gov.uk/waste/hazardouswaste.htm
- www.baua.de
- www.inrs.fr

References:

TRGS 558:
Technical Rules for Hazardous Substances: Activities involving high temperature wool

TRGS 559:
Technical Rules for Hazardous Substances: Mineral Dust

INRS Fiche Pratique de sécurité:
Fibres céramiques réfractaires (Security Fact Sheet) ED 109 edition 9/2015