

**POWDER COATING WASTES:**

**GUIDANCE**

**ON**

**DISPOSAL**



British Coatings Federation Ltd  
James House, Bridge Street  
Leatherhead, Surrey KT22 7EP  
Telephone: 01372 360660  
Fax: 01372 376 069

## **Disclaimer**

© BCF 2000

The information and guidance contained in this publication is believed at the time of publication to be true and accurate. It is based on general principles and is intended for general guidance and information only. Its applicability to individual circumstances must be considered having full regard to the specific prevailing conditions. All recommendations contained in this publication are made without guarantee and the British Coatings Federation cannot accept any liability in respect of consequences arising (whether directly or indirectly) from the use of such advice.

# POWDER COATING WASTES: GUIDANCE ON DISPOSAL

## Introduction

1. This guide is intended to give general advice to applicators of powder coatings on the correct disposal of waste powders arising from the coating process.

## Waste categories

2. Powder coating waste is officially classified as either
- controlled waste or
  - special waste (controlled waste of a more hazardous nature)

Additionally, the waste management industry has designated a third, unofficial category of

- difficult waste

**3.1 Controlled wastes:** all industrial wastes, including powder coating material no longer required or discarded from the process for disposal, are classified as controlled wastes, as defined in the Environmental Protection Act (EPA)<sup>1</sup> and the Controlled Waste Regulations<sup>2</sup>.

**Duty of Care:** Anyone who imports, produces, carries keeps, treats or disposes of controlled waste has a DUTY OF CARE under the EPA to:

- ensure the waste is safely contained and transferred only to an authorised person (usually a licensed waste carrier)
- complete and sign, and ensure recipients sign, transfer notes indicating the nature and disposal route of the waste
- keep transfer notes for two years

**3.2 Special wastes:** certain wastes, which are designated as being dangerous, are classified as special wastes and are subject to a greater level of control than other wastes, as set out in the Special Waste Regulations<sup>3</sup>. As well as having to comply with the Duty of Care, the following additional requirements apply:

- the Environment Agency (England and Wales) or SEPA (Scotland) or DoE(NI) (Northern Ireland) must be pre-notified of the nature of the waste and details of the intended transfer before the waste is moved from the site where it was generated
- a consignment note, with a unique number, purchased from the agency is normally used for pre-notification
- the remaining consignment note sheets are completed at each stage of the waste transfer chain
- the waste producer must keep his copy of the consignment note for a minimum of three years.

**3.3 Difficult wastes:** The waste management industry has introduced this designation for wastes that are not officially classifiable as special wastes (i.e. do not meet the relevant compositional criteria or exhibit flammable, explosive etc properties), but which that industry considers should be subject to a comparable level of control.

## Classification as special waste

4. A waste is classifiable as special, dependent on the percentage of hazardous substances present. Specific concentration thresholds apply and are related to the CHIP hazard classification of the particular substances. Essentially, the more hazardous the substance, the lower the threshold for classification as special of a waste containing that substance.

---

<sup>1</sup> Section 75, Part II, The Environmental Protection Act 1990, chapter 43, The Stationery Office

<sup>2</sup> The Controlled Waste Regulations 1992 [SI1992:588], The Stationery Office

<sup>3</sup> The Special Waste Regulations 1996 [SI1996: 972], The Stationery Office

## Powder coating wastes

5. In most cases, powder coating wastes do NOT meet the special waste criteria. However, three particular categories warrant more specific guidance:

### 5.1 Triglycidyl isocyanurate (TGIC)

The Special Waste Regulations DO apply to triglycidyl isocyanurate (TGIC) containing powder coating wastes, when there is 3% or more of TGIC, by weight, in the waste. In the case of individual products, the safety data sheet will provide information on the TGIC content.

The regulations do not prevent the level of TGIC being reduced below the 3% threshold and thereby allowing the waste to be disposed of as controlled, rather than special waste. Whilst the decision on use of this option must rest with the producer of the waste in question, the following points of clarification and guidance are offered:

- one way of reducing the TGIC content is by blending the TGIC waste with a non-TGIC containing powder. For this to be acceptable as a controlled waste, the whole amount must be of a uniform composition and any sample, which might be taken, has to contain less than 3% of TGIC. This can only be achieved by thoroughly mixing all components to ensure an even distribution. Thus a waste consisting of 10 boxes of powder containing 4% TGIC and 10 with TGIC-free powder would be a special waste; 20 boxes of the material evenly blended together would not be.

If wastes are to be mixed before disposal, due regard must be given to the requirements of the COSHH Regulations i.e. to carry out a risk assessment and to ensure the appropriate protection of those carrying out the mixing and of others in the vicinity.

- another way of reducing the TGIC content is by chemically converting the TGIC in the powder. Powder coaters should be aware that the already-established practice of placing part-used or full boxes of powder in stoving ovens and "solidifying" the contents is not necessarily an appropriate form of treatment.

Whilst suitable for eliminating dusts created in the general handling of wastes, by sealing the outer surface of the material, it is only of value here, if it can be proved that the level of TGIC is reduced below the 3% threshold. Arguments that the TGIC is "locked" in a fused matrix are not acceptable to the authorities. The absence of TGIC can only be achieved by chemically reacting all the TGIC present throughout the bulk of the waste, with other components of the powder coating. Although this is theoretically possible, the following points need to be taken into account:

- to achieve the necessary reaction conditions, the powder must be heated to, and held at, the curing temperature required for normal film curing (up to 200°C). The time required for the material to be held at this temperature will be significantly longer than in the normal curing cycle, as the TGIC content has to be reduced below 3% throughout the bulk, particularly at the centre. It should be noted even if the centre is "solid", that the TGIC has not necessarily reacted. Coatings manufacturers are not in a position to give any advice on appropriate schedules for such activities, which are outside the intended uses of the material, as supplied
- there is a potential fire risk involved in placing flammable packaging materials, such as cardboard boxes and plastic inner bags in stoving ovens for any period of time
- any evaluation/testing of a waste subjected to the above process, to demonstrate reaction of the TGIC content, would only be valid for that particular configuration of product/pack size/quantity/oven conditions. Variation to any of these would require re-evaluation.

### 5.2 Irritant substances

Certain powder coatings may contain cross-linking substances that are classified as irritant (if present, these will be listed in Section 2 of the product safety data sheet, with the Xi notation). Whilst the Special Waste Regulations apply to waste containing irritant substances, the threshold for classification as

special is that 20% or more of substances assigned the risk phrases R36, R37 or R38 has to be present. This is far higher than the cross-linker levels found in powder coatings (typically 4-6%, maximum 9%), and thus such wastes will not be classifiable as special.

### **5.3 Lead chromates**

Whilst lead chromate containing powder coatings may be classified and labelled as toxic, the criteria do not lead to wastes containing these substances being classified as special wastes. However, the waste management industry designates these as difficult wastes (see paragraph 3) and both powder and empty packaging is usually required to be disposed of as if they were special wastes.

6. It is recommended wherever there is any doubt about the classification of a powder coating waste, that you contact your waste management company or the Environment Agency (England and Wales) or SEPA (Scotland) for advice on the applicability of the Special Waste Regulations.

#### **Environment Agency**

Enquiry telephone: 0845 9333111

Web: [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

#### **SEPA**

Enquiry telephone: 01786 457700

Web: [www.sepa.gov.uk](http://www.sepa.gov.uk)

Date: 11<sup>th</sup> December 2000

Refs: AJN/ajn444b