

# Paint Industry

## Introduction

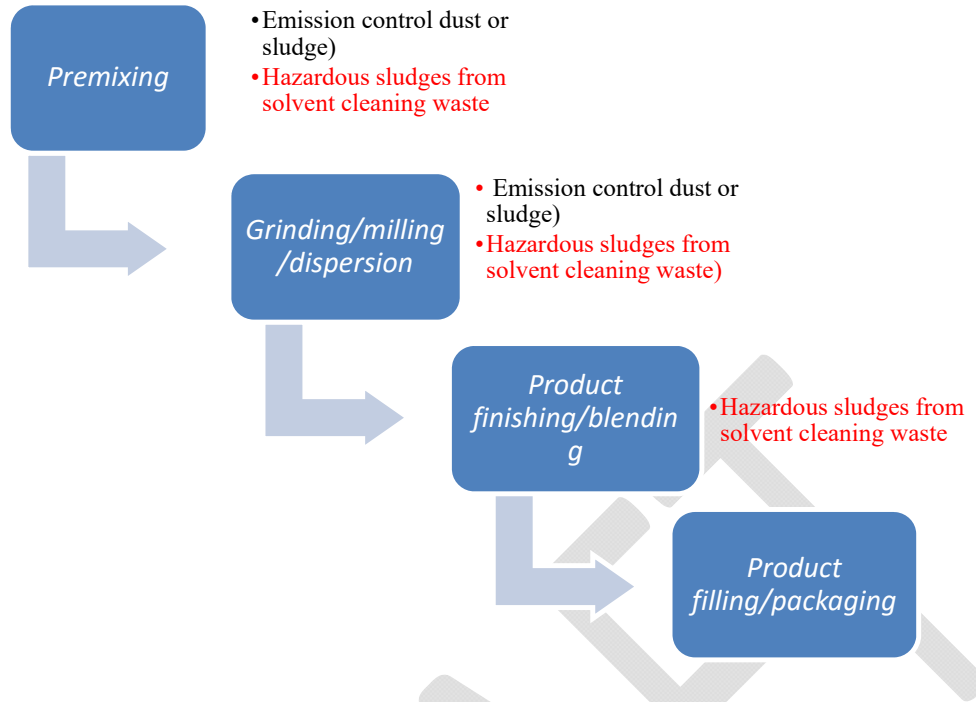
Paint industry are classified as industrial establishments as per decree 5243/2001. Various emissions can result from this industrial activity as described below. This factsheet intends on identifying the main resulting pollutants and specifically develops the ways for treatment of hazardous waste ones.

## Process description

The production of paints is mainly a mixing process that consists of dispersing and stabilizing pigments, resins and solvents. Most paint manufacturing facilities formulate paint in batch operations. The figure below shows a typical process flow diagram of the paint manufacturing process. The four major steps involved in the manufacturing of paints and surface coatings are:

1. *Preassembly/premixing*: The liquid raw materials (e.g., resins, solvents, oils, alcohols, and/or water) are mixed in containers. Pigments and other solid raw materials are added to the liquids to form the viscous (thick) mill base.
2. *Grinding/milling/dispersion*: The mill base is processed further by milling to break up aggregations and agglomerates (clusters) of solids, producing a uniform dispersion of finely divided solid particles in the solvent. Milling consists of wetting, grinding, and dispersion. Wetting of the pigment particles with the solvent occurs by displacement of adsorbed contaminants (e.g., air, moisture and gases) from the surface of the particles. Grinding is the mechanical breakup of aggregations of solid particles into isolated primary particles. Dispersion is the movement of the particles into the solvent to form a stable mixture in which settling and re-aggregation of the solids is prevented or inhibited.
3. *Product finishing/blending*: Final product specifications are achieved in the product finishing step, by thinning, tinting and blending. Thinning, or let down, consists of diluting the milled dispersion with binder, solvents, and/or diluents to achieve desired product characteristics such as viscosity, drying time, etc.
4. *Product filling/packaging*: The final manufacturing step is product filling. The finished blend is transferred to holding tanks or hoppers and is pumped or gravity fed through filters to remove solid impurities such as dust, pigment agglomerates, gelled or skinned resin, etc. The filtered product then is transferred to pails, drums, tanks, or other containers for storage and shipment.

The common activities at paint in 3 districts are outlined in the following chart.



References: UNIDO, MSCIPP, ERM studies. Typical example only.

**Paint Industry Hazardous Waste Description and Management**

Description of waste	Waste Code (EWC)	Waste Classification (Dangerous Goods Classification)	Basel Class.	Storage	Transport (UN-Code)	Treatment	HS-Code
Waste paint and varnish containing organic solvents or other dangerous substances	080111*	3	A4070	3	1263	D10	3208
Sludges from paint or varnish containing organic solvents or other dangerous substances	080113*	3	A4070	3	1210	D10	3215

The content of this draft Fact Sheet has been compiled to the best of our knowledge. The fact sheet will be continuously updated based on consultation with concerned industries or relevant stakeholders.

<b>Other organic solvent, washing liquids and other mother liquors</b>	<b>070104*</b>	<b>3</b>	<b>A3140</b>	<b>3</b>	<b>1993</b>	<b>R1</b>	<b>3814</b>
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European Waste Code (EWC) 070104\*: Other organic solvent, washing liquids and other mother liquors

European Waste Code (EWC) 080111\*: Waste paint and varnish containing organic solvents or other dangerous substances

European Waste Code (EWC) 080113\*: Sludges from paint or varnish containing organic solvents or other dangerous substances

Waste Classification (Dangerous Goods Classification) 3: Flammable Liquids



Basel Classification A4070: Wastes from the production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish

Basel Classification A3140: Waste non-halogenated organic solvents

Transport Code (UN) 1210: Printing ink, flammable or Printing ink related material (including printing ink thinning or reducing compound), flammable

Transport Code (UN) 1263: Paint-related materials including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base, or paint related material including paint thinning, drying, removing, or reducing compound

Transport Code (UN) 1993: Flammable liquids, n.o.s.

D10: Disposal on land (for example: incineration in a licensed rotary kiln with >1,050C)

R1: Use as a fuel

**Disposal Facilities**

**MEAB Schöneiche – Märkische Entsorgungsanlagen Betriebsgesellschaft mbH**

Address: Am Galluner Kanal, 15806 Schöneiche

Site: Tschudistraße 3, 14476 Potsdam

Point of Contact: Christine Landgraf; Tel. 033208–60 281; c.landgraf@meab.de

**NORD (Dänemark) – Nordgroup A/ S – Ekokem A/ S**

Lindholmvej 3, DK – 5800 Nyborg

Point of Contact: Jens Peter Rasmussen; Tel: +4563317100; [jpr@nordgroup.eu](mailto:jpr@nordgroup.eu)**GSB Baar-Ebenhausen - gsb- Entsorgungsbetrieb Ebenhausen**

Äußerer Ring 50, 85107 Baar-Ebenhausen

Point of Contact: Peter Pentenrieder, Tel.: +49 (0) 84 53 / 91-6 15, Mobil: +49 (0) 170 / 28 68 791, [peter.pentenrieder@gsb-mbh.de](mailto:peter.pentenrieder@gsb-mbh.de)**Fernwärme Wien - Wien Energie GmbH**

Kundenservice Abfallwirtschaft, Simmeringer Haide, 11. Haidequerstrasse 6, 1110 Wien

Point of Contact: Tel: +43 (0)1 4004–89695, [abfall@wienenergie.at](mailto:abfall@wienenergie.at)**EGEO Portugal**

Rua Miguel Bombarda, n.º 71, Quinta dos Almostéis, 2689-508 Sacavém

Point of Contact: Tel: +351 219 499 200; [geral@egeo.pt](mailto:geral@egeo.pt)**Recosoil (Baden-Württemberg, Lösemittelrecyclinganlage) - Recosoil Recycling GmbH**

Obertorstrasse 5, 88622 Überlingen

Point of Contact: Hellmut E. Funk, Telefon: 07551/915442, [info@recosoil.de](mailto:info@recosoil.de)**For additional information, contact:**Ministry of Environment  
Service of Urban EnvironmentDepartment of Urban Environmental Protection  
Mrs. Olfat Hamdan  
Phone: 01 976555 Ext. 448  
email: [o.hamdan@moe.gov.lb](mailto:o.hamdan@moe.gov.lb)

Lebanon Pollution Abatement Project (LEPAP)

Mr. Marwan Rizkallah  
Phone: 01 976555 Ext. 521  
Email: [m.rizkallah@moe.gov.lb](mailto:m.rizkallah@moe.gov.lb)