Printing Industry

Introduction

Printing industries are classified as industrial establishments as per decree 5243/2001. Printing operations use materials that may adversely affect air, water, and land: certain chemicals involved in printing volatilize, which contributes to air emissions from the facility and to smog formation; other chemicals may be discharged to drains and impact freshwater or marine ecosystems; and solid wastes contribute to the existing local and regional disposal problems. This factsheet intends on identifying the main hazardous wastes and specifically develops the ways for its management.

Process description

Printing begins with the preparation of artwork or copy, which is photographed to produce an image. A proof is made which will be used to compare with the printed product and make adjustments to the press. The photographic image is transferred to a plate. In the platemaking step, the image areas of the plate are made receptive to the ink. In the printing step, ink is applied to the plate, then transferred to a rubber blanket and then to the substrate. The substrate accepts the ink, reproducing the image. The substrate is then cut, folded, and bound to produce the final product. Printing can be divided into four separate steps:

1. *Image processing:* once the material is properly arranged, it is photographed to produce transparencies. If an image is to be printed as a full color reproduction, then color separations are made to provide a single-color image or record which can then be used to produce the single-color printing plate for lithography or the cylinder for gravure. Once the film has been developed, checked, and re-photographed (if necessary), it is sent on to the plate- or cylinder-making operation.
2. *Platemaking:* The printing process revolves around the intermediate image carrier, a plate or cylinder that accepts ink off a roller and transfers the image to the rubber blanket. The blanket, in turn, transfers it to the paper. Each printing process uses a different type of image carrier. The type of ink and press used, the number of impressions that can be printed, the speed with which they are printed, and the characteristics of the image are all determined by the type of image carrier. The four different types of image carriers generally used are manual, mechanical, electrostatic, and photomechanical
3. *Printing:* Once the plates are prepared, the actual printing can begin. The printing operations are generally the same for each of the major processes, with the exception of screen printing. The two common types of presses are sheet-fed presses and web presses. Sheet-fed presses can print up to 3 impressions per second. Web presses typically print at a rate of 1000 to 1600 feet per minute.
4. *Finishing:* the term “finishing” refers to final trimming, folding, collating, binding, laminating, and/or embossing operations. A variety of binding methods are used for

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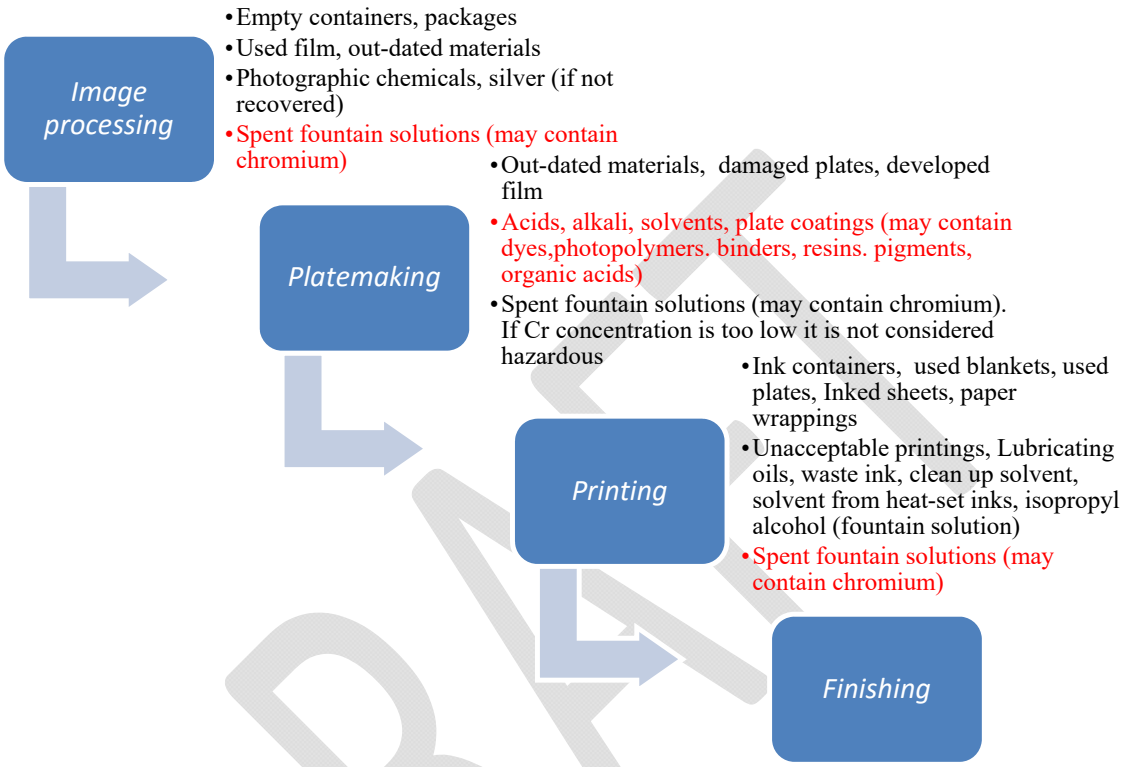
books, periodicals, and pamphlets. These include stitching (stapling), gluing, and mechanical binding. These finishing operations are frequently accomplished by an outside service organization.

The common activities at printing facilities are outlined in the following chart.



References: UNIDO, MSCIPP, ERM studies.

Printing 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 ink containing dangerous substances	080312*	3	A4070	3	1210	D10	32
Acids	110105*	8	A1060	8B	3264	D9	3204
Other organic solvent, washing liquids and other	070104*	3	A3140	3	1993	R1	3814

mother liquors							
inorganic chemicals consisting of or containing dangerous substances	**160507***	**various**	**A4140**	**various**	**various**	**D10**	**2846**

European Waste Code (EWC) 070104*: Other organic solvent, washing liquids and other mother liquors
European Waste Code (EWC) 080312*: Waste ink containing dangerous substances
European Waste Code (EWC) 110105*: Acids
European Waste Code (EWC) 160507*: Discarded inorganic chemicals consisting of or containing dangerous substances

Waste Classification (Dangerous Goods Classification) 3: Flammable Liquids

Waste Classification (Dangerous Goods Classification) 8: Corrosives

Basel Classification A1060: Waste liquors from the pickling of metals
Basel Classification A3140: Waste non-halogenated organic solvents
Basel Classification A4140: Waste consisting of hazardous chemicals
Basel Classification A4070: Wastes from the production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish

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Transport Code (UN) 1210: Printing ink, flammable or Printing ink related material (including printing ink thinning or reducing compound), flammable
Transport Code (UN) 1993: Flammable liquids, n.o.s.
Transport Code (UN) 3264: Corrosive liquid, acidic, inorganic, n.o.s.

D10: Disposal on land (for example: incineration in a licensed rotary kiln with >1,050C)
D9: Physico chemical treatment facility (for example: evaporation, drying, calcination, neutralization, precipitation)
R1: Use as a fuel

Disposal Facilities

Recosoil (Baden-Württemberg, Lösemittelrecyclinganlage) - Recosoil Recycling Gmbh
Obertorstrasse 5, 88622 Überlingen
Point of Contact: Hellmut E. Funk, Telefon: 07551/915442, info@recosoil.de

EMV (Entsorger in Mecklenburg-Vorpommern
Entsorgungszentrum Mecklenburg-Vorpommern GmbH
Neue Straße 37, 18317 Saal
Point of Contact: Frau Grit Rusch, Telefon: +4-9 (0) 38223 / 717, info@emv-saal.de

MEAB Schöneiche – Märkische Entsorgungsanlagen Betriebsgesellschaft mbH
Address: Am Galluner Kanal, 15806 Schöneiche
Site: Tschudistraße 3, 14476 Potsdam
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