Pesticide Industry

Introduction

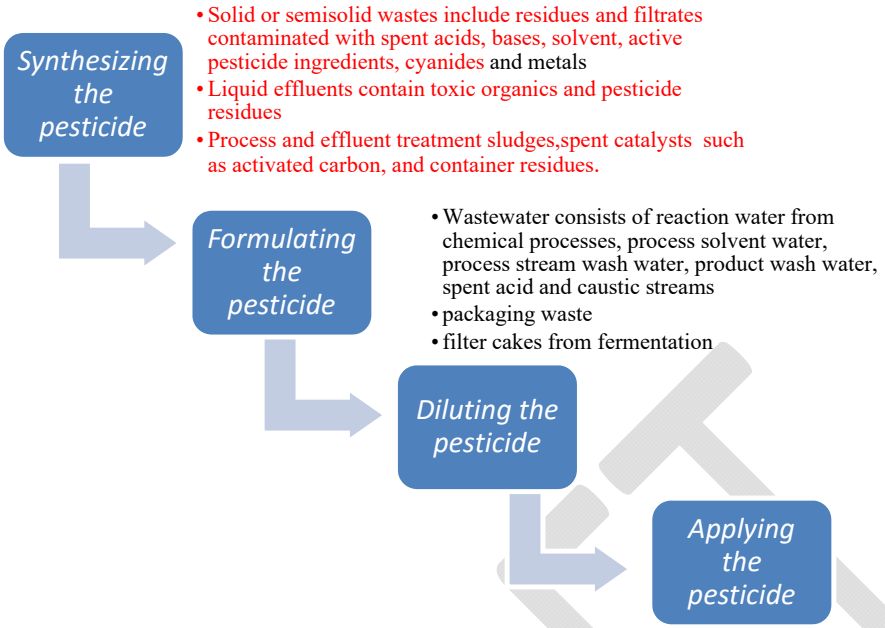
Pesticide industry is classified as industrial establishments as per decree 5243/2001. This factsheet intends on identifying the main resulting Hazardous pollutants and specifically develops the ways for its management.

Process description

Pesticide industry involves at least three activities:

1. *Synthesizing the pesticide:* When a new pesticide is first developed, it is manufactured on a small scale in a laboratory. If the substance proves viable, production begins in the factory. Batch or continuous manufacturing insures a high volume, perhaps as much as 500 kilograms per cycle. Synthesizing a pesticide is a complex chemical procedure that requires trained chemists and a large, sophisticated laboratory. The basic procedure entails altering an organic molecule to form a pesticide. This may involve any of a number of specific reagents and catalysts and often must take place in a controlled climate (within a certain temperature range, for example). Once synthesized, the active ingredient is packaged and sent to a formulator. Liquid insecticides can be shipped in tank trucks or 200-liter drums. Transport of the active ingredient follows all regulations for hazardous materials transportation.
2. *Formulating the pesticide:* A formulator accepts the active ingredient, measures out the proper amount, mixes it with carrier if it is to be a liquid pesticide or with inert powders or dry fertilizers if it is to be a dust pesticide, then bottles or packages it. Liquid pesticides are packaged in 200-liter drums if a large-scale farmer is the anticipated customer or 20-liter jugs for small-scale operations. Dry formulations can be packaged in 5 to 10 kilogram plastic or plastic-lined bags. An emulsified formulation is usually concentrated to render transport easier (the active ingredient typically makes up 50 percent of the emulsified concentrate), but granulated and dry pesticides are ready to use.
3. *Diluting the pesticide:* The pesticide might be stored a short time before it is requested. When it is ready for transport, the estimated necessary amount is sent to the farmer, who dilutes the emulsified concentrate to create the amount of pesticide desired. In most instances, the final product consists of only .5 to 1 percent of the original active ingredient. The pesticide is now ready to be applied.

The common activities in pesticide industry are outlined in the following chart.



References: UNIDO, MSCIPP, ERM studies.

Pesticide 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
Agrochemical waste containing dangerous substances	020108 *	6.1	A4030	6.1C	2811	D10	3208
Agrochemical waste containing dangerous substances	020108 *	5.1	A4030	5.1B	1942	R5	38249
Inorganic plant protection products, wood-preserving agents and	061301 *	-	A4040	12	-	D9	32

other biocides							
Spent Acids	**110105 ***	**8**	**A1060**	**8B**	**3264**	**D9**	**3204**
Spent Bases	**110107 ***	**8**	**A1060**	**8B**	**3262**	**D9**	**3204**
inorganic chemicals consisting of or containing dangerous substances	**160507 ***	**various**	**A4140**	**various**	**various**	**D10**	**2846**
Other organic solvent, washing liquids and other mother liquors	**070104 ***	**3**	**A3140**	**3**	**1993**	**R1**	**3814**

European Waste Code (EWC) 020108*: Agrochemical waste containing dangerous substances
European Waste Code (EWC) 061301*:inorganic pesticides, biocides and wood preserving agents.
European Waste Code (EWC) 070104*: Other organic solvent, washing liquids and other mother liquors
European Waste Code (EWC) 110105*: Pickling acids
European Waste Code (EWC) 110107*: Pickling bases
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) 5.1: Oxidizing Substances

Waste Classification (Dangerous Goods Classification) 6.1: Toxic Substances

Waste Classification (Dangerous Goods Classification) 8: Corrosives

Basel Classification A1060: Waste liquors
Basel Classification A3140: Waste non-halogenated organic solvents
Basel Classification A4030: Wastes from the production, formulation and use of biocides and phytopharmaceuticals, including waste pesticides and herbicides which are off-specification, outdated or unfit for their originally intended use
Basel Classification A4040: Wastes from the manufacture, formulation and use of wood-preserving chemicals
Basel Classification A4140: Waste consisting of hazardous chemicals

Transport Code (UN) 1942: Ammonium nitrate, with not more than 0.2 percent of combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance
Transport Code (UN) 1993: Flammable liquids, n.o.s.
Transport Code (UN) 2811: Toxic solids, organic, not otherwise specified (n.o.s.)
Transport Code (UN) 3262: Corrosive solid, basic, inorganic, 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: Phyisco chemical treatment facility (for example: evaporation, drying, calcination, neutralization, precipitation)
R5: Recycling/reclamation of other inorganic material

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

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Lindholmvej 3, DK – 5800 Nyborg
Point of Contact: Jens Peter Rasmussen; Tel: +4563317100; jpr@nordgroup.eu

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