

“Capacity Building and Strengthening Institutional Arrangement”

Workshop: “Best Available Techniques (BAT)”

BREFs on Painting and Plastics and its Recycling Industries

Mr. Giorgio Grimaldi, Mr. Giorgio De Benedetti,

APAT

Agency for Environmental Protection and Technical Services

Index

1. Introduction
2. Methodology of analysis of a production cycle
3. Final Remarks
4. Reference documents

1. Introduction

Painting

- Finishing is a process affecting both aesthetic and mechanical aspects of a product. A quality product not only looks good but has a protective and durable surface coating as well.
- Painting production is a chemical process involving a lot of natural and artificial substances, often with a significant potential risk for health and safety and for the environment.
- Potential dangerous effluents emission in the various environmental matrices, significant water and energy consumption, bad and dangerous smell emissions are the most relevant environmental issues of the production cycle.
- Painting products are used in many civil and industrial applications, widely spreaded, thus resulting in a lot of diffuse sources of emissions, not easily to be monitored and controlled.

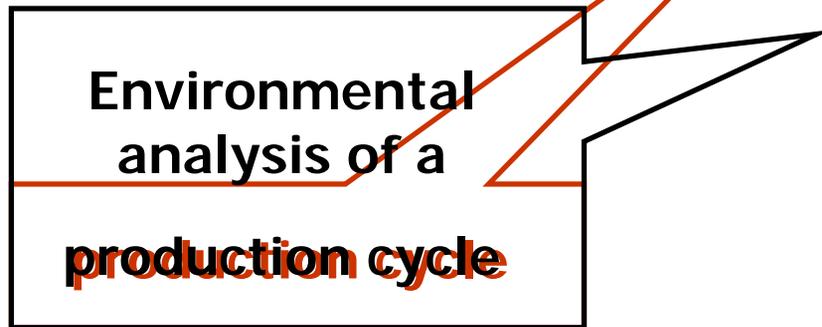
1. Introduction

Plastics

- Production of plastics is a complex process, mainly of chemical nature, involving a lot of materials with a significant potential risk for health and safety and for the environment.
- Potential dangerous effluents emission and significant energy consumption in the production cycle (blend preparation and moulding) are to be attentively faced.
- Typical products spam from raw plastic (polymers) for further working to a large variety of objects, widely present in every part of our daily life.
- The life cycle of plastic objects is of a relatively short duration, thus requiring short term replacement.
- The large amount of plastic objects put in the environment calls for a great attention to the heritage that could be leaved to the future generations. Then recycling and reuse have to be strongly encouraged.

2. Methodology of analysis of a production cycle

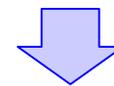
Analysis of a production cycle



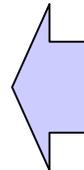
the specific segment of an economic or industrial activity with an homogeneous production

the analysis of every phase of the working process

AIMED TO EVALUATE



- Optimize the use of resources in the process
- Compare the environmental performance of the installation versus the pertinent industry



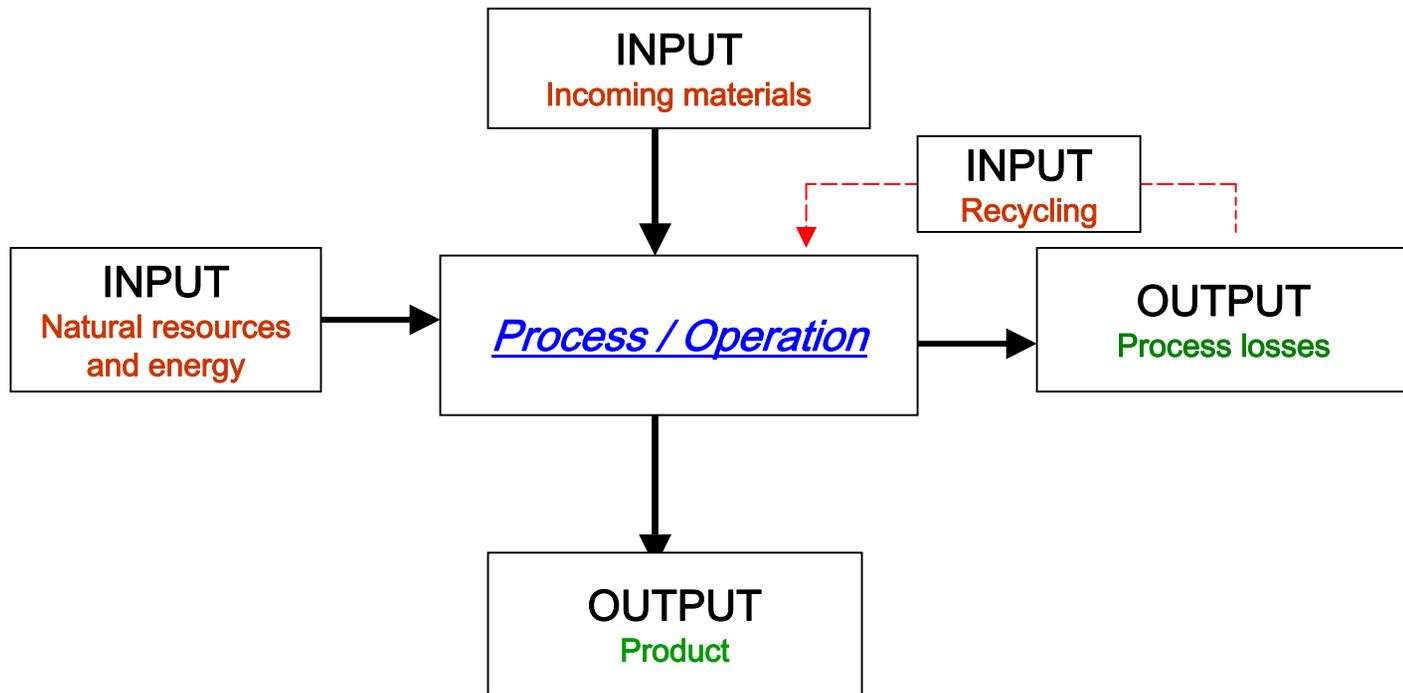
IN ORDER TO

1. materials & energy consumption
2. primary resources consumption
3. dangerous effluents emission
4. impact and risk factors
5. applied techniques in the process
6. best available techniques

2. Methodology of analysis of a production cycle

Splitting up into phases the process cycle

phase analysis



2. Methodology of analysis of a production cycle

Methodology of analysis

- Input: incoming materials, natural resources, energy
- Output: final product, waste, dangerous effluents and effects in the different environmental matrices
- Reuse of materials inside the production process
- Balance of materials, energy and water
- Indirect environmental effects
- Integrated approach: IPPC, BAT, BREF

3. Final remarks

Painting industry

- A specific BREF on the painting industry has not yet been implemented at EU level.
- Existing BREFs on chemical industry can give some general indication on valid measures that can be implemented, mainly on filtration systems and on water and energy saving techniques.
- Also in absence of a comparative analysis of the adopted techniques aimed to identify and to propose formal BATs, the primary and secondary prevention analyses, are a good starting point to improve an effective environmental safeguard program.
- Uncontrolled dispersion of working residuals in the vast variety of civil and industrial applications of painting products remains one the most critical problems to be faced.

3. Final remarks

Plastic and its recycling industry

- Plastic production can have a considerable impact on the environment, due to the intrinsic nature of the involved substances and processes, resulting in both air and water pollution, but mainly in large non biodegradable wastes.
- Implementation of (candidate) BATs in every production phase (from the raw material selection to the final handworks production) can significantly reduce emission of dangerous pollutants in every environmental matrix.
- Attentive water and energy balances in the affected production phases can result in both primary resources saving and significant economic advantages.
- Priority should be given to the recovery of plastic material at the end of life of products, in order both to reduce the amount of dangerous material left in the environment and to save resources, i.e. through production of energy.

4. Reference documents

Painting industry

- Some indication of possible BAT could be found on pigments production, which are only one of the raw material used as input in the painting industry
Speciality Inorganic Chemicals: <http://eippcb.jrc.es/pages/Fmembers.htm>

- Methodology for environmental analysis of production cycles – APAT 36/2006 (*Italian language*)

http://www.apat.gov.it/Media/cicli_produttivi/Avvio.htm

- Analysis of dangerous materials (Cap. 3: Painting, Cap. 5 Plastics) - ARPA Emilia Romagna, 2005 (*Italian language*)

- Atmospheric pollution reduction from industrial activities - Lombardia Region Official Bullettin, 2003 (*Italian language*)

4. Reference documents

Plastics and its recycling industry

- A specific BREF has not still been prepared. Some indications could be found only for polymers production, thus covering only the preparation of the raw materials used in the plastic industry.

<http://eippcb.jrc.es/pages/Fmembers.htm>

- Methodology for environmental analysis of production cycles – APAT 36/2006 (*Italian language*)

http://www.apat.gov.it/Media/cicli_produttivi/Avvio.htm

- Analysis of dangerous materials (Cap. 3: Painting, Cap. 5 Plastics) - ARPA Emilia Romagna, 2005 (*Italian language*)

- Atmospheric pollution reduction from industrial activities - Lombardia Region Official Bullettin, 2003 (*Italian language*)