CARWASH

CAR WORKSHOPS: A SERIOUS GAME APPROACH TO MANAGING WASTE
CONSIDERED HAZARDOUS

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CASE STUDIES:
“Waste management in a car workshop”

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1. INTRODUCTION

This document aims at describing how waste management is organised in a real car repair workshop in Italy. This case study can be used by companies, professionals, organisations and any interested party to compare waste management solutions adopted, considering the context and the specific regulations in each country.

The company XXX offers different services: car workshop, auto electric shop and tire centre. The Company XXX is located in the Fano area, province of Pesaro and Urbino, Marche Region. The region has a catchment area of 60.000 potential customers. The two associate partners started their activity as auto electric shop and step by step improved their business with the car workshop and tire center. The idea is to offer all the services related to car maintenance and repair in one place.

The workshop counts 10 employees and has a sales volume between 600.000€ and 1.000.000€ per year. The main activity of the company is light vehicles repair and maintenance (cars and light trucks), rarely lorries.

If compared with other similar companies of the region, the workshop can be considered as a medium-large company. It gives special attention to waste management and adopts specific internal procedures. The partners are formally in charge of the waste management, but especially one of the partners supervises all the activities related to the waste production and management. This allows a very strict control and monitoring of all the activities related to the waste production and a comprehensive overview of the entire management process.

2. OBJECTIVE

The objective of the present document is to describe the waste management procedures adopted by the company XXX in order to:

- follow the national and international regulations on the waste management.
- reduce the production of waste
- minimize the risks for the personnel and the environment
- reduce the costs related to waste management

This case study can be used to compare the different situations in the partner countries and encourage innovation processes in the field and in the sector of car-repair.

3. BASIC CONCEPTS

The basic concepts contained within the present case study are mainly based on the Italian Legislative Decree 3/4/2006 n. 152 Norme in materia ambientale, which is the main national regulation for waste management.

Waste is considered any substance or object […] which the holder discards, has intention to discard or obligation to discard.

Producer: anyone whose activities produce waste. The original producer and the person who carries out pre-processing, mixing or other operations resulting in a change of the nature or composition of waste;

Holder: is the producer of the waste or the person who owns it;
Waste management: the collection, transport, recycling and disposal of waste, including supervision and monitoring of these operations and also the control of the dump after its closure;

Collection: the operations related to the collection, separation and preparation of the waste for transport;

Waste separation: the appropriate collection necessary to separate the waste into homogeneous categories including wet organic waste.

Disposal: the operations needed to dispose the waste in the safest way for the people and the environment.

Recycling: the processes related to the use or transformation of the waste in order to reuse it, producing energy or other materials

Place of waste production: one or more buildings or factories or infrastructures linked together within a specific area where the production activities which create the waste is located;

Storage: all the activities related to disposal and storage of the waste before recycling.

Temporary storage: storage of waste in the place in which the waste is produced, before collection and transportation by an authorised company.

Hazardous waste: all waste listed in the Legislative Decree 3/4/2006 n. 152 , according to the European Waste Catalogue, considered dangerous.

4. POLICIES TO MINIMIZE THE GENERATION OF HAZARDOUS WASTE

4.1 Policies to minimize the generation of hazardous waste in production areas:

The car workshop produces different waste:

Not hazardous waste

1. Air filters
2. Brake pads (without asbestos)
3. Metal scraps
4. Plastic materials (wheel covers, bumpers)
5. Lamps
6. Belts
7. Car candles
8. Wipers
9. Light not contaminated with oils or grease
10. Transmission fluids
11. Some cleaning and protection products
12. Mastic
13. Leak detector
14. Silicon
15. Used tires
16. Cartridge and toner for printers
Hazardous waste

1. Used oil
2. Brake fluids
3. Brake pads containing asbestos
4. Packaging contaminated with hazardous waste
5. Spray cans
6. Absorbent materials, filters and protective clothings contaminated with hazardous materials.
7. Cars to scrap
8. Oil filters
9. Antifreeze fluids
10. Rubber or plastic parts contaminated with oils or grease
11. Shock absorbers and axels contaminated with oil
12. Radiators and sleeves
13. Fuel filters
14. Used batteries
15. Condensation fluids of the air compressors
16. Electric elements
17. Liquefied gas

The regulations in Italy do not allow companies to dispose the waste produced. The waste has to be temporarily stored in a dedicated area within the company and collected, transported and disposed by authorised companies. The car workshops pay for the disposal based on the weight of the waste and the frequency of the disposal. So, minimising the production of waste is one of the priority of the company XXX in order to reduce the risks for people and environment and the costs. In order to achieve this the company implemented the following procedures and precautions:

- the supervisor, responsible for waste management is constantly in contact with the workers and has a clear overview of the waste production processes, the quantity produced and the storage activities.

- all the workers are conscious of the fact that they work with and produce hazardous waste, which is dangerous for people and the environment. They are able to recognise hazardous waste and are aware of the procedures to handle hazardous waste in a correct way.

- the floor of the entire workshop and storage areas is water proof. This prevents the pollution of the ground and helps remove the occasional spillage.

- when possible spray cans have been replaced with nebulisers in order to reduce hazardous waste produced and the time and costs to dispose this waste.

- all workers should pay attention to the spillage of hazardous material as, for example used motor oil. In this case the workers have to place the specific container under the car before starting to extract the used motor oil and move it as soon as possible to the used oil storage area. This minimises the risk of spillage, direct contact with the oil and use (and disposal) of absorbents.

- personal protection and the absorbent materials have to be used in the right amount to carry out the needed tasks.
- the company provides different activities in the same place: car workshop, auto electric shop and tire center. This optimises the use of the materials (even hazardous materials) and reduces the production of waste.

4.2 Policies to minimize the generation of hazardous waste in storage areas:

It is important to reduce as much as possible the waste temporarily stored in the workshop. A large amount of waste can generate a higher risk of contamination and accidents as spillage, fire or other events. The waste produced can be considered a cost for the company so, reduction of waste means less costs for transport and disposal.

The storing process has been organised following the national regulation on waste management (Legislative Decree 152/2006 - Testo unico ambientale) regarding the storage area, the containers used and all the needed procedures.

In the workshop there are different storage areas. There is an outdoor storage area and an indoor storage area.

The outdoor storage area is dedicated mainly to metal scraps, used tires and electronic components. The area is clearly visible and marked by signboards. It has an impermeable pavement and is protected (with a roof and closed containers) from adverse weather. Different waste is stored in different containers labelled with the indication of the waste contained, the EWC code, the status and the level of danger. Despite the waste stored is not considered hazardous waste, for the company it is important to prevent its degradation in order to avoid cleaning processes of the storage areas that can produce other waste (even dangerous waste) and increase costs.

The used tires, inner tubes and rubber parts are stored in a dedicated container. The area is cleaned periodically removing rubber powder and other debris.

All the dangerous waste is stored in a dedicated indoor area. The area has a waterproof floor and correct ventilation. It is marked with specific signs. The signs indicate the procedures needed for the handling of various waste in order to avoid risks for health and environment.

Each waste produced is stored using containers and procedures based on its nature and characteristic. The containers for the temporary storage are marked with labels describing the name of the waste, the EWC code, the status of the material and the levels of danger.

The used motor oils are stored in dedicated proof leak containers with anti spillage systems. The containers are placed over a containment basin with a capacity of at least one third of the container used.

In the case of oil filters, all oil is removed before the storage in order to prevent spillage and reduce the disposal costs (the company pays for each kilogram to dispose). They are stored in proof leak containers.

The used batteries are stored indoor in a separate room to avoid further risks or contamination. The room has a waterproof floor and is marked with specific signs. The containers used are specific for the storage of used batteries. They are made of material resistant to the acids’ corrosion and have lids in order to avoid contamination of other materials.

The other liquids produced, like brake fluid, coolant and other oils, are stored in separate leak proof containers. It is forbidden to mix any waste. Each container is labelled with all the needed information on the waste (name, EWC code, status, level of danger). The containers are placed on a containment basin.
The absorbent materials are separated based on the material and stored in different containers. The absorbent materials contaminated with hazardous products are all stored in the same container. The container is watertight to prevent any contamination or contact with people.

In order to minimise the amount of waste in the storage areas the waste is removed every 6 months (the maximum period is of 364 days).

4.3 Data recording

The company has two employees in charge of filling in all the needed documents. They are in charge of all the administrative tasks of the workshop. The data related to the waste produced is communicated to the responsible person by the supervisor. The waste produced by the company is registered once a week. The document used is the loading registry. It includes information on:

- Date of production
- Progressive registration number
- Description of the waste
- EWC code
- Weight

An unloading registry is filled in when the waste is collected and transported by an authorised company. The registry, for each waste, includes the following information:

- Date of production
- Progressive registration number
- Description of the waste
- EWC code
- Weight
- The quantity
- If it will be disposed or reused
- The date and the reference number in the transport form.

All the documents are stored in the company and are available in case of request by the authorities.

4.4 Training on waste management

The company is involved in continuous training on waste management in order to adapt the activities and processes to the new regulations and innovation of materials. Usually the training is delivered by a specialised external consultant. The participants are mainly the responsible of the administration and the owners. Afterwards the information is shared with all the staff members.