CARWASH

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

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IO6-BEST PRACTICE:
“Correct handling, storage and disposal of paints”

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1. INTRODUCTION

The purpose of this guide is to provide staff of the repair and service workshops, in order to correct bad habits with regards to paint works, and to guide for implementation of good environmental practices in the company.

This document lists risks and dangers arising from handling, storage and disposal of paints, diluents and fillers, as well as recommendations for prevent accidents causing damage to human health and the environment.

The above mentioned materials are considered hazardous waste, so these should be treated with special care during handling, storage and disposal. Here are some guidelines for that these processes are carried out in the safest way both for environmentally as for human health.

2. BASICS CONCEPT

Paint: A liquid mixture, usually of a solid pigment in a liquid vehicle, used as a decorative or protective coating.

Paints are made by mixing and blending three main components:

- The pigments
  Pigments are finely ground inorganic or organic powders which provide colour, opacity, film cohesion and sometimes corrosion inhibition.

- The binder
  Binders are usually resins or oils but can be inorganic compounds such as soluble silicates. The binder is the film forming component in the paint.

- The solvent
  Solvents are used to dissolve the binder and to facilitate application at the paint. Solvents are usually organic liquids or water.

Classification of paints:

Since, in the broadest terms, a paint consists of a particular pigment, dispersed in a particular binder, dissolved in a particular solvent then the number of generic types of paint is limited. The most common methods of classifying paints are either by their pigmentation or by their binder type.

Primers for steel are usually classified according to the main corrosion inhibitive pigments used in their formulation, e.g. zinc phosphate primers and metallic zinc primers, etc. Each of these inhibitive pigments can be incorporated into a range of binder resins giving for example, zinc phosphate alkyd primers, zinc phosphate epoxy primers, etc.

Intermediate and finish coats are usually classified according to their binders, e.g. epoxies, vinyls, urethanes, etc.

Paint coatings:

Paints are usually applied one coat on top of another and each coat has a specific function / purpose. These are described as follows.

- Primers
  The primer is applied directly onto the cleaned steel surface or, in the case of duplex systems, the sealed metal coating. Its purpose is to wet the surface and to provide good adhesion for subsequently applied coats. For primers applied directly to steel surfaces, these are also usually required to provide corrosion inhibition.

- Intermediate coats
Intermediate coats are applied to ‘build’ the total film thickness of the system. Generally, the thicker the coating the longer the life. Intermediate coats are specially designed to enhance the overall protection and, when highly pigmented, decrease permeability to oxygen and water. The incorporation of laminar pigments, such as micaceous iron oxide (MIO), reduces or delays moisture penetration in humid atmospheres and improves tensile strength. Modern specifications now include inert pigments such as glass flakes to act as laminar pigments. Undercoats must remain compatible with finishing coats when there are unavoidable delays in applying them.

- **Finish coat**
  The finish coat provides the required appearance and surface resistance of the system. Depending on the conditions of exposure, it must also provide the first line of defence against weather and sunlight, open exposure, and condensation.

3. **CONTENT: CORRECT HANDLING, STORAGE AND DISPOSAL OF PAINTS**

When you are planning chemical storage areas, you should carefully consider how you store, handle and take delivery of chemicals at your site.

3.1 **Risks of handling**

In general, flammable materials must not be stored near exits, electrical equipment or heating equipment. They should always be stored in a separate, well-ventilated storage area, away from potential sources of ignition. If the material is removed from its original container, it must be placed into a container that is appropriate for flammable materials.

To prevent fires, flammable materials must be properly managed in the workplace. There are three main ways to prevent fires:

Limit the amounts of flammable and combustible materials
- Keep only what you need on-site
- Purchase materials in the smallest volumes necessary
- At work locations, keep only those chemicals that are needed for the present task
- Do not let hazardous wastes accumulate at the work site
- Store products, including wastes, used at the work site in proper containers
- Keep flammable materials separate from other processes and storage areas

Provide proper ventilation to ensure flammable vapours do not accumulate
- Install properly designed ventilation in storage areas
- Ensure that processes that use or make flammable materials do not exhaust back in the work site
- Ensure that equipment, such as spray booths, where flammable materials are used, are exhausted outside of the building, and away from air intakes
- Ventilation systems must be properly maintained

Control ignition sources
- Ground and bond all work and ignition-proof equipment
- Ensure that there is no smoking in work areas where flammable materials are stored or used
• Never store flammable materials near hot equipment or open flames
• Use intrinsically safe and non-sparking tools

3.2 Precautions

All organic-based solvents represent potential health hazards, and require that particular precaution be taken both in use and in storage.

Tips:
• Read the label carefully for information on safety and health-related issues.
• Solvents are highly flammable – keep these paints away from all sources of heat, and never expose directly to an open flame.
• Store in cool, well-ventilated areas.
• Keep these products out of reach of pets and children.
• Dispose of rags properly – rags soaked with oil-based materials can ignite spontaneously if not spread out to dry.
• Ensure good ventilation with open windows and doors.
• Wear protective equipment.
• Keep children and pets out of the painted area

The basic gear you need for a safe paint job are: gloves, safety glasses or goggles, a dust-mask for sanding, and sensible shoes with a good grip.

Skin protection:
• Wear the appropriate gloves: cloth or leather gloves for sanding and scraping, impermeable gloves for applying water-based paint, solvent-resistant chemical gloves for handling solvent-based products.

Eye protection:
• Use eye goggles or glasses, or a face mask.

Lung Protection:
• Wear an anti-dust mask whilst sanding a surface or a solvent-respirator if working with solvent-based products.
• Ensure good ventilation with open windows and doors.
• Remove sources of ignition.

3.3 How to carrying out the transportation of paint waste

Proper handling and transporting of hazardous waste can reduce the possibility of accidental spills. When bringing hazardous waste to household hazardous waste collection services, take the following precautions:
• Don’t mix products.
• Keep products in their original containers.
• Label products that aren’t in their original containers.

4. RECALL
Storage and handling:

When you receive any chemical it may be supplied with a safety data sheet (SDS). This is sometimes also referred to as a material safety data sheet. The SDS contains information about the chemical including:

- how to store and use it safely
- chemicals it is incompatible with, eg that you should not store it with
- how to dispose of it safely.

When you receive a chemical, check the SDS to find out how to store it safely. If you receive a chemical without an SDS, contact your supplier to find out whether or not they have to provide one.

Locate your storage areas to minimize the risks of damage to the environment, and the health and safety of your employees and the public. Ensure that your storage area is located so if chemicals leak or spill, you will not pollute air, land, surface waters or groundwater.

Make sure your storage area is:

- secure - avoid sites close to a boundary fence
- away from heavy plant or where vehicles move around to minimize the risk of collision or damage to storage systems and pipework from vibrations
- not likely to flood or, if this is not possible, above the height that any flood water is likely to reach
- clearly signposted, with a clear boundary.

You should store chemicals safely to protect groundwater. It is important to remember that groundwater may be used for drinking water supplies. To find out if you are in an area where groundwater is particularly vulnerable, you should contact your environmental regulator.

Delivery and handling of chemicals on your site can cause pollution. For example, forklifts can damage chemical containers and chemical bottles may break and leak. You should:

Supervise deliveries of chemicals and fuels at all times.

- Label all tanks and containers clearly with their contents and storage capacity - check levels before deliveries to prevent overfilling and spills.
- Locate delivery areas to minimize the vehicle movements on your site. If possible, have a one-way system to avoid congestion, especially if you have frequent deliveries.
- Mark out delivery areas clearly. If possible, put a roof over the delivery area.
- Have an up-to-date drainage plan of your site. This will help you identify where any spills may end up.
- Ensure drains from delivery areas connect to the foul sewer. If this isn't possible, isolate run-off from the surface water drainage system, either by catch-pits or sumps with isolating valves. Your delivery area should have an impermeable surface.
- Check that delivery pipes have automatic cut-off valves to prevent overfilling tanks, intermediate bulk containers or mobile bowser.
- Keep a spill kit close to delivery areas, and make sure that your staff know how to use it.