

TRADE OF PAINTING & DECORATING

PHASE 2

Module 2

Surface Preparation

UNIT: 1

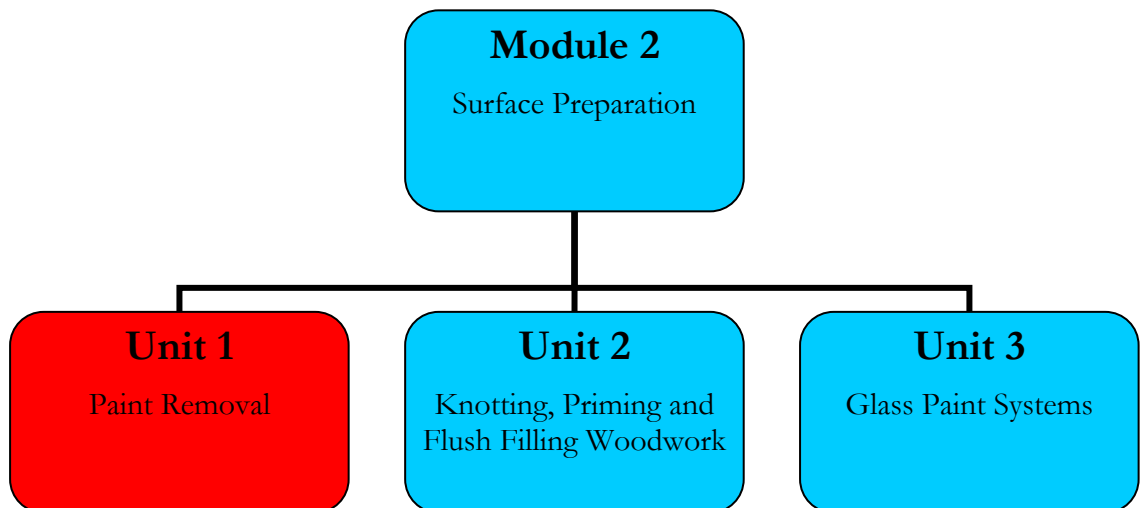
Paint Removal

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Introduction

The removal of paint is a very important skill for the painter to develop. It is a function that has to be carried out when the old paint system has broken down. This happens through the actions of weathering and / or aging, and this takes the form of peeling flaking, cracking or blistering. Also occasionally a previously painted surface is stripped in order to be varnished. Depending on the type of surface the painter must decide which method of removal is most suited. Repainting a surface is a very different skill to the painting of new surfaces which is reasonably straightforward. This skill tests the ability of the painter to restore the original shape of the surface which may have been lost due to the accumulation of paint. Therefore no damage can be caused to the surface during paint removal operations. This is a learning process whereby the painter learns to work safely, recognise types of surfaces and applies the most suitable method of paint removal.



Learning Outcomes

By the end of this unit each apprentice will be able to:

- Remove paint from previously painted surface
- Use a gas torch
- Use a hot air gun
- Use liquid paint removers

1.0 Remove Paint From Previously Painted Surface

Key learning points

- Hazards associated with burning of toxic paints
- Fire precautions and safe disposal of paint
- Safety equipment, clothing and safety precautions
- Surfaces, situations and suitability of each method
- Surfaces brought to an acceptable standard for priming

1.1 Hazards Associated With Burning of Toxic Paints

The following information is taken The Department of the Environment Food and Rural Affairs website

Advice on lead in old paint - Advice Sheet 3

We know that too much lead in our bodies isn't healthy. Over the last 30 years or so, a lot has been done to get rid of it in this country, but you may still come across it in old paint.

This is because up until the mid-1960s, lead was used to make some kinds of paint - for windows, doors and other woodwork, as well as for some metal items, like radiators. A few minor uses continued until the 1980s.

This website provides information on what to do if you have lead paint - or if you suspect you have lead paint - in your home.

You can download the leaflet [Planning to decorate? Do it safely](#) (174 KB) for advice on lead paint, or you can read it below.

You can also find more detailed information in the following Advice Sheets:

- [Advice Sheet Number 1](#) - Look out for lead paint
- [Advice Sheet Number 2](#) - Testing for lead paint
- [Advice Sheet Number 3](#) - Restoration methods and safe working
- [Advice Sheet Number 4](#) - Lead paint and the law
- [Advice Sheet Number 5](#) - Professional help and advice

See [frequently asked questions](#) for more information on Lead Paint in older homes.

Restoration methods and safe working

This advice sheet is intended to support the guidance given in the leaflet [Planning to decorate? Do it safely](#) (174 KB) - to provide more detailed information on identifying and safely dealing with lead paint.

If the paintwork is completely sound, consider overcoating with a modern freshly purchased paint. If the paintwork has deteriorated, localised or complete restoration will need to be carried out.

Ideally, pregnant women and children should not be present in any house or building where lead paint is being removed. Bystanders should be kept out of the room being redecorated and any connecting doors adjacent to occupied areas should be kept closed and/or sealed with plastic sheets.

Remove furnishings wherever possible, cover surrounding surfaces to catch residues for subsequent safe disposal.

Removing paintwork

- If removing lead paintwork, minimize non-essential occupancy in the work area.
- DO NOT USE paint removal methods that create dry dust and lead fumes.
 - Do not sand paper
 - Do not scrape
 - Do not blast clean
- Minimize exposure to dust and debris by wearing protective clothing, gloves and a face mask fitted with a respiratory protective device whose filter conforms to EN143 P2. 3M make a whole range of face masks that comply, as do two other companies, Moldex and Sundstrom.
- Paintwork should be removed with methods that don't create dust or fumes, using either solvent or caustic-based liquid paint removers, or a hot-air gun.
- Use solvent or liquid strippers only in accordance with their safety instructions, and remember that solvent-free, water-based paint removers are now available - ask your DIY dealer for details.
- Hot-air guns should only be used so that it will only cause softening of the paint film - do not burn the paint as this will give off fumes. The gun setting must be below 450°C.
- Final removal of paint residues to give a smooth surface should only be performed by wet abrasion with a waterproofed abrasive paper.
- Large flat areas of lead paint such as walls and ceilings are best treated with lining paper or wall coverings. If lead paint is found underneath wall coverings when they are removed, the restoration and safe working guidance given here for leaded paint must be followed.
- DO NOT eat, drink or smoke whilst removing the paint.

Taking a break

- Take breaks away from the work area.
- Store protective clothing in a plastic bag between breaks in work, wash hands and exposed skin surfaces thoroughly before undertaking other activities especially eating, drinking, smoking or preparing food or drink.
- Thorough washing of the face and hands are imperative to reduce the chances of lead being ingested.

Disposal

- Immediately on removal, place all paint residues and debris in a plastic container, e.g. a plastic bag, and seal securely for final disposal with normal household waste.
- Professional painters are advised to check with their local Environmental Health Officer and/or Waste Regulatory Authority when large amounts of lead-paint residues require disposal.
- After work, the area should be thoroughly cleaned with water and detergent. Dust and loose debris should be collected using a vacuum cleaner fitted with high efficiency filters (P2 cartridge filter complying with EN143). Suitable vacuum cleaners conform to British Standard BS 5415. Some domestic vacuum cleaners comply with this standard and are available through electrical retail outlets; industrial cleaners are available through hire companies. Disposal of the debris should be in accordance with the guidelines in this advice sheet.
- Small amounts of dust/debris may be removed using a brush provided the waste material has been thoroughly wetted first.
- Disposable clothing, filters and brushes etc, used should be contained in a plastic bag with the other paint residues for subsequent removal.

Redecoration

- After removal of lead paint and disposal of wastes, the exposed surfaces can be redecorated with an appropriate paint or coating system, used in accordance with manufacturers instructions.
- If you are uncertain about your ability to execute the guidance safely, then employ decorating contractors with proven experience in the safe removal of lead paintwork. An advice sheet on painting contractors is available - see [Advice Sheet 5](#).

Where can I find out more?

More information on lead paint is available on this website in the following advice sheets (you are reading Advice Sheet 3):

[Advice Sheet 1](#) - Look out for lead paint

[Advice Sheet 2](#) - Testing for lead paint

[Advice Sheet 4](#) - Lead paint and the law

[Advice Sheet 5](#) - Professional help and advice

1.2 Fire Precautions and Safe Disposal of Removed Paint

Before commencing to burn off paint indoors or outdoors always prepare the area, check equipment and advise people of your activity. This will help to avoid accidents.

Safety precautions when burning off

1. Keep gas containers upright and stored outside in ventilated area.
2. Always check connections at container gun.
3. Always check hose for leaks or cracks and always use the recommended hose for L.P.G (It does not kink)
4. Never have flame high enough to scorch the timber.
5. Always have a container of water or sand or a fire extinguisher handy in case of fire.
6. Always scrape stripped paint into metal container to avoid damage to floors etc. and fire risk will also be reduced. A light piece of metal can be used to cover floors to avoid damage.
7. Always turn off gas at container when not in use.
8. When burning off inside have proper ventilation.
9. When burning off inside remove fabrics and soft furnishings from the area (curtains, carpets, chairs etc).
10. Use metal shield or aluminium tapes when burning off near glass or PVC etc.
11. Do not burn off late in the day and before leaving the job check to see if any timber is left smouldering.
12. Do not leave torches unattended when finished as they remain hot for a long time and can inflict burns

For environmental reasons it is illegal to discard paint that has been burnt off by placing in refuse bins, or dumping in landfill areas. Specialist firms will dispose of it for you. If the paint contains lead notify them so that special measures can be put in place for its safe disposal.

These firms are licensed to do this work and they provide special drums and packaging that have been designed for this purpose and which has been assigned by a Dangerous Goods Safety Advisor. Containers must be labelled correctly.

1.3 Safety Equipment, Clothing and Safety Precautions

Masks

A wide variety of masks available. Disposable permanent types with filter replacements and the more expensive air fed. They should all have the CE mark. The disposable type are only suitable when sanding. The ones with interchangeable filters can double for dust and fumes. Select the correct one for the job in hand and the uses the mask is designed for are displayed on its package.



Masks,

Air fed mask

Used where the supply of fresh air is limited the painter could be overcome by fumes.



Power pack for air fed mask



Air fed mask

Gloves,

Always wear strong canvass type gloves when burning off as the torch and the tools get very hot and a severe burn can be received.



Goggles& Glasses

Use goggles or safety glasses when burning off especially above eye level as pieces of hot paint can fly causing eye injury.



Goggles& Glasses

1.4 Tools Materials and Equipment used in Paint Removal

Gas torch

The equipment consists of a container of L.P.G. (Liquid petroleum gas) either propane or butane to which a regulator is fitted by the operator. Attached to the regulator is a specially designed hose which carries the gas to the torch.

The nozzles of the torch are generally interchangeable and this gives the painter a wide variety of flames, from narrow for small work to broad for large work. The heat produced is 1400°C approx and heat at this intensity can cause scorching to the wood if not carefully controlled. This type of equipment is popular with the painter for burning off outdoors as it is portable, clean to use, easy to light and the flame can be regulated at the torch and at the regulator.

Burning off is the fastest method of paint removal open to the decorator but it has its limitations and it is important to see the good points and the bad points of any equipment because only then can the operator use the equipment in an efficient manner.

The LPG gas container is refillable and should always be stored outside in a secure sheltered area.



Gas bottle Regulator Hose & Torch

Disposable type gas torch

Small torches screwed on to a container of gas which is disposable. The gas is either propane or butane L.P.G. Not very practical to the professional painter on large jobs as the containers last only for a short time and refills are expensive. Handy for small jobs or for accessing awkward areas needing burning off

The flame -produced is much less than that of the previous type.



Disposable type

Hot air gun

Similar in appearance to a hair dryer. Hot air is produced to a temperature of 20 degrees C to 600 degrees C. the level of heat is adjustable.

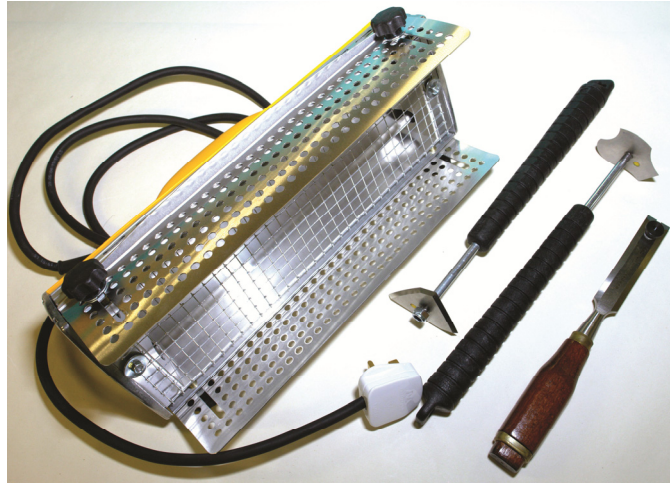
The unit produces no flames, which reduces the risk of fire. Can be used with shields near glass. Difficult to scorch timber. Safer to use indoors than gas torch.



Hot air gun

Infra Red System

A Swedish paint removal system. Safe to use to burn off lead based paints safely. Heats to 200°C. Can be used with a hands free stand which is very handy when using for long periods. It can be used in conjunction with a special type scraper to remove old hard fronting putties from sashes.



Infra Red System

Paint scrapers

Made from very strong tempered metal that will withstand heat. With a hard wood or polypropylene handle. Available in widths 25mm. 50mm. 75mm. 100mm. and multi task types. Generally used for removal of paint from flat surfaces when burning off or using paint removers and the removal of flaking paint, wallpapers and denibbing.



Paint scrapers

Shave hooks

Used in conjunction with burning off equipment or paint removers to remove softened paint and varnish from mouldings etc. There are different shaped heads to suit the work in hand and their edges can be kept sharp by filing. Care must be taken when using this tool as mouldings can be damaged easily and impossible to repair by trying to remove paint that has not been fully softened. Make sure paint is well softened before removing from decorative areas.



Aluminium Tape

This tape is adhesive with an aluminium face. It comes in a variety of widths. It is ideal when burning off near glass PVC or other substrates while paint removal is in operation.



Aluminium Tape

1.5 Surfaces, Situations and Suitability of Each Method.

Paintwork which has blistered or cracked should be removed.

Surfaces can be stripped with either solvents or by heat (burning off) and the choice of method will largely depend upon the type of surface involved.

Solvents are better used on surfaces that would otherwise be damaged by burning off e.g. varnished hard woods etc.

1. Removal of paint from large areas outdoors.

Use gas torch or infra red system. Solvent paint removers become messy and evaporate too quickly when coated to large areas.

2. Removal of paint from wood work indoors.

Use hot air or Infra red system. They are much safer due to the fact that there are no flames from either

3. Removal of paint from carved woodwork.

Use solvent paint remover small stiff brushes and steel wool.

4 Removal of varnish from hardwood which is to be re-varnished.

Use solvent paint remover.

5. Removal of paint from plaster.

Use solvent paint remover. Use of heat will crack plaster.

6. Removal of paint from light metal.

Use solvent paint remover. Heat will soften any soldered joints and metal could buckle.

7. Removal of paint from areas near flammable objects or in areas carrying dangerous fumes

Use solvent paint removers and as an added precaution brass scrapers should be used if removing paint from metal to avoid sparks.

8. Removal of paint from glazed work.

Can be burned off using metal with hot air, infra red system or gas torch with low flame using metal shield and aluminium foil tape, but solvent paint removers are more suitable as cracking of glass can result in extra cost to the work estimated for.

2.0 Gas Torch

Key Learning Points

- Procedures when using a gas torch

2.1 *Procedures When Using a Torch*

One method of burning off is done with a gas torch. The burning off should be thorough as any paint left on the surface would have lost its elasticity and would be hazardous to the new paint film.

Setting up the equipment

- The regulator which has the special hose and torch attached is connected to the gas bottle.
- The valve on the top of the regulator is turned clockwise to open slightly allowing a small amount of gas into the hose.
- Pulling back the trigger the gas at low pressure can be ignited.
- The gas flow can now be gradually increased to the required pressure by opening the valve fully.
- Scorching of the timber should be avoided at all costs as scorched timber will not hold paint well.

The burning off procedure is to burn off

- the mouldings of bottom panel first and then the panel
- The same procedure to the opposite panel
- The bottom rail
- Stiles to lock rail
- Lower muntin
- The mouldings of top panel first and then the panel
- The same procedure to the opposite panel
- The lock rail
- The continuation of the stiles
- Top muntin
- Top rail

Burn off mouldings first, then all the flat surfaces. (as above) As heat rises, the burning off should begin at the bottom of each surface and stripping knife, or shave hook just a little behind the flame. If force is needed to remove the paint the flame has not been on the surface long enough. As the paint is removed it should be scraped into a metal container. If hot paint falls to the floor it may catch fire or damage the floor covering therefore it is vital to cover that area with a sheet of light metal.

When completed remove the container from the scene of operations, in case of dust which can be injurious as it may contain lead. The surface should then be rubbed down with glass paper and wiped with white spirit to remove dust.

When burning off outside work make sure to knot and prime after burning to avoid moisture penetrating the bare timber resulting in swelling of the wood and lack of adhesion of the paint film.

Care should be taken to avoid raising excessive dust and wear mask as can dust can be injurious as it may contain lead.

Wear canvass type gloves (not rubber) to protect hands from heat or hot melted paint.

Method of burning off a panelled door& safety precautions

1. Get bucket of water or sand or fire extinguisher
2. Get gloves, goggles, scrapers, shave hooks, metal bucket/bin for burned off paint.
3. If work is inside provide adequate ventilation. Remove flammable materials.
4. Check burning off equipment. Gas bottle, hose, regulator & torch. Remove door fittings.
5. Start burning off at bottom mouldings & panels first etc. Working up the door carefully, avoiding any damage by over use of scrapers or shave hooks.
6. Turn off gas at regulator & when gas is burned off turn off at gun. Put gun away safely to cool.
7. Clean up area.
8. Knock off any loose pieces of hard paint by scraping.
9. Wearing gloves, rub down with coarse sandpaper to smoothen surface.
10. Coat all knots with knotting varnish. Prime, fill, undercoat and finish with appropriate paints.
11. Clean & replace fittings. Clean up, and store all materials safely.

3.0 Hot Air Gun

Key learning Points

1. Procedures when using hot air gun
2. Electrical safety
3. Basic first aid procedures

3.1 *Procedures when using hot air gun*

This is an electrical appliance used to remove paints and varnishes. A filament is heated and produces hot air from 20°C to 600 °C which can be controlled by the operator. Ideal for removal of paint or varnishes indoors as it produces no flames.

Similar in appearance to a hair dryer. The unit produces no flames, which reduces the risk of fire. Can be used with shields near glass. Difficult to scorch timber. Safer to use indoors. than gas torch.

The procedures for the removal of paint or varnish is the same as the gas torch and using paint scrapers and shave hooks to remove to softened material

Care when working near others. Do not point in their direction as they may be burned accidentally

Always wear canvas type gloves, (not rubber as this gun gets very hot) mask and goggles where necessary.

Plug out when not using.

Do not use in wet areas.

Do not use in areas where flammable materials are present.

Turn down to its lowest temperature before switching off. This allows the gun to cool down. Switch off and allow to cool fully in a safe place before storing.

Electrical Safety

Great care must be taken when working with electrical items as injury or death can be the result of carelessness.

- Always use 110 volt tools and equipment when working outdoors.
- Do not use tools or equipment in wet conditions.
- Leads should always be opened out fully to avoid overheating.
- Do not have loose trailing leads as they can cause people to trip. Use covers to avoid this hazard.
- Check leads for cracks, breaks or other damage. If there are any do not attempt to repair it with tape. Have it attended to by an electrician
- Do not use equipment if plugs are loose or cracked.
- Do not plug equipment into damaged sockets.

3.2 *Procedures When Using an Infra Red Unit*

Key learning Points

- Procedures when using unit
- Electrical safety

The system uses infrared technology to remove paint. Infrared radiation and minor heat softens the paint quickly and efficiently, making it easy to remove. The innovative system from Sweden is silent and labour saving for use in repainting exterior and interior wooden surfaces. The tool is ideal for window restoration as it softens paint and putty simultaneously without cracking the glass.

How does it work?

Infrared rays heat and soften paint quickly and efficiently, making it easy to scrape the surface clean without the effort and strain of other “traditional” methods.

As less force is needed to strip the paint, this reduces the risk of damaging the wood and further reduces the need for re-finishing work.

While you scrape one surface the next can be heated up, maximising productivity. The resulting stripped surface is clean, dry and smooth and can be re-painted immediately.

This revolutionary invention removes many of the difficult, time-consuming aspects of paint removal, preservation and restoration. No toxic chemicals, gels, liquids, rinsing or drying.

Using the system is quick, clean, cost-effective and environmentally friendly. It can be used by professionals and homeowners alike. The system is extremely gentle on the wood, which is why it is highly recommended by the National Heritage Boards in Sweden, Norway and Finland.

Safety aspects

Infrared technology works at very low operating temperatures; the paint reaches no more than 200°C and the wood surface around 70°C. Low operating temperatures prevent surface damage to the wood as well as the release of toxic lead fumes. As the paint is removed in scrapings, dust is dramatically reduced and any lead compounds remain within the paint scrapings which are easily collected for safe disposal as hazardous waste. The system also has a preserving effect on the wood surface. Mould and fungus are removed; both resin and rosin rise up towards the sapwood to increase the wood's resistance to moisture.

The system makes it possible to renovate quickly and efficiently in a way that's gentle on the wood, gentle on you and gentle on the environment.

Safe to strip lead based paints safely. Heats to 200°C Can be used with a hands free stand which is very handy when using for long periods. It can be used in conjunction with a special type scraper to remove old hard fronting putties from sashes

Recommendations and guidance

The low operating temperatures of the equipment 100-200°C, are not hot enough to turn lead into gas (which happens at around 400°C). However, paint fumes could still contain substances that are harmful to human health. Always ensure there is good ventilation/air exchange and/or use a protective mask. When removing factory-applied paint, a protective mask must always be worn. When removing two-pack paints and varnishes, epoxy-based finishes and boat hull paints, a protective mask must always be worn. Extra care should always be taken when working indoors, and we recommend that a protective mask or a fume extractor always be used.

The procedures for the removal of paint or varnish is the same as the gas torch and using paint scrapers and shave hooks to remove to softened material.

The electrical safety conditions are the same as for the hot air gun.

230V or 110V types available. As with all hand tools 110V types with a transformer are safer and must always be used when working outdoors.

3.3 Basic First Aid Procedures for Burns and Chemical Splashes

Minor Burns and Scalds

Treatment:

1. Place the injured part under slowly running water, or soak in cold water for ten minutes or as long as pain persists.
2. Gently remove any rings, watches, belts, shoes from the injured area before it starts to swell.
3. Dress with clean, sterile, non-fluffy material.
 - a. DO NOT use adhesive dressings.
 - b. DO NOT apply lotions, ointments or fat to burn/ scald.
 - c. DO NOT break blisters or otherwise interfere.
4. If in doubt, seek medical aid.

Chemical Burns

Treatment:

1. Flood the area with slowly running water for at least ten minutes.
2. Gently remove contaminated clothing while flooding injured area, taking care not to contaminate yourself.
3. Continue treatment for severe burns
4. Remove to hospital.

Basic first aid for chemical splashes

1. If splashing on the skin occurs wash off with plenty of cold water.
2. If splashing to the eyes occurs wash out with plenty of cold water. The cold water can be cupped in your hands and the eye immersed in it, and by blinking repeatedly the paint remover can be washed out. The same can be done in a dish of water or by sponging with a clean sponge. If pain persists it is advisable to see a doctor.

4.0 Liquid Paint Removers

Key learning points

- Procedures when using liquid paint removers
- Neutralising liquid/chemical paint remover
- Costing materials and labour

4.1 Procedures when using liquid paint removers

Paint removers are used to remove paint and varnish coatings that have broken down and are peeling or flaking or have deteriorated due to long exposure to the environment. They soften the old coating which can then be removed by using scrapers and shave hooks.

They are designed to remove paint from wood, plaster and metal surfaces. It has a thick gel formulation which allows it to be applied to flat and vertical surfaces. It can be used to remove emulsion paint from walls and to strip paint from car bodies. They are an ideal method of removing paint from intricate carvings, mouldings, spindles, light metals and near glass. Depending on the type used, it is important to read the manufacturer's instructions on application techniques, on washing down and neutralising the surface after stripping. Stripped paint must be disposed of in a safe manner and not dumped in waste bins.

Four types

- Solvent
- Caustic
- Paste
- Biodegradable

Solvent paint removers

These paint removers contain highly flammable solvents together with a thickening agent which helps hold them in place when applied and also slows down the rate of evaporation. They are the ones commonly used for stripping paints indoors and outdoors.

Caustic paint remover:

Not used generally by the painter. Generally used in a situation where a number of timber doors or several pieces of furniture etc are placed in a bath of the caustic paint remover. Very dangerous material. Wood can be darkened and the grain raised.

Biodegradable:

New to the market. They are a paste type. Much slower to activate before removal.

Paint removers contain solvents/chemicals that are injurious to the painters health so precautions must be taken when using.

- Read the health and safety data sheet supplied by the manufacturer
- Read the fact sheet supplied by the manufacturer
- Open/unscrew covers slowly to release pressure
- Wear correct respirator
- Wear gloves/gauntlets designed for working with chemicals
- Wear goggles
- Keep away from naked flames
- Do not smoke
- Have plenty of ventilation as in confined areas painter could be overcome by fumes

How do solvent paint removers work.

These paint removers contain highly flammable solvents together with a thickening agent which helps hold them in place when applied and also slows down the rate of evaporation.

This gives the solvents time to penetrate and soften the dried paint film making it easy to remove.

Method of application:

Apply paint remover thickly with a cheap type paint brush. Lay on thickly. Do not brush out as it will mean recoating later.

Leave for 15 to 20 minutes and then check by scraping a small section. If the softened paint strips easily begin removing the paint. If not, apply more paint remover and wait for another 10 to 15 minutes. Patience is important when beginning to strip surfaces as the paint remover must be given time to act and will react differently in different temperatures

Remove all the softened paint from flat areas with your scraper and use shave hook carefully on the mouldings. Use steel wool dipped in paint remover to remove remaining paint from mouldings or crevices. Complete area can be rubbed over with steel wool and paint remover to finally clean off any ingrained paint.

Wash down the entire surface with a solution of liquid detergent and water. Where there is a danger of raising the grain, wash down with white spirit instead. Allow the surface to dry thoroughly before redecorating.

Steps in removal of varnish from a door& re- varnishing it:

1. Remove fittings.
2. Put up wet paint sign.
3. Protect floor area under & near door with papers. Change these during removal as softened paint can be accidentally carried on shoes which can lead to damage to floor surfaces.
4. Mask off surrounding areas of door.
5. Ensure adequate ventilation if task is indoors. Apply paint remover carefully (avoid splashing). Use a cheap type brush. Allow time to soften.
6. When softened scrape off using paint scraper into old paint tin, taking care to avoid scratching surface. Use steel wool on mouldings & for final removal of paint or varnish from door.
7. Wash surface thoroughly with white spirit or water. Leave to dry. (read manufacturers instructions).
8. Clean up. Remove all used papers.
9. Cover floor area with clean paper or drop sheet. Apply 2-3 coats of varnish as directed. Rubbing down in between coats.
10. Clean & put back fittings.

Paste Type Paint Remover

This type of paint remover is ideal for stripping paint or varnish from flat surfaces or intricate mouldings. It can also be used on brick stone or metal.

Method of application

Mask and cover areas not being stripped. Apply a thick coat of paste with a filling knife or trowel to the surface which is to be stripped working it well into any moulding or gaps. The next stage is to cover the application with a wet cloth or plastic and leave for a minimum of two hours. It is advisable to wet the cloth at intervals.

It may take several hours to penetrate the paint fully depending on the number of coats. Remove the cloth and gently lift off the paste with a scraper. The paint will come away with the paste and any surplus can be washed away with a sponge, and water any splashes to the eye or skin should be washed away immediately. It must also be noted that the paste should not be used on veneered or aluminium surfaces and is neutralised with water.

Note:

When using paste type on hardwood doors etc. care must be taken not to discolour timber. This may be achieved by testing an area first.

Biodegradable Type:**Method of application**

Mask and cover areas not being stripped.

Biodegradable paint removers are safe to touch, virtually odourless, Apply liberally with brush, filling knife or trowel. Layer must be thickly applied for best results (15M²per litre). Will remove most types of paint.

The stripper is applied to the surface and turns off-white or a pale green when the paint or varnish is ready to be removed. Like other paint removers it will adhere to vertical surfaces and a light spraying with water will help remove the softened paint.

It can be applied on a multitude of interior and exterior surfaces including wood, brick, plaster, metal, marble, masonry, concrete and fiberglass. Is environmentally safe and contain no harsh solvents. They are non-flammable and easily cleaned up with water.

Remove with scrapers and shave hooks as with other types. Wash well with water to remove any residue after scraping. No need to neutralise.

Basic first aid for chemical splashes:

Wash well with water and leave to dry

If splashing on the skin occurs wash off with plenty of cold water.

If splashing to the eyes occurs wash out with plenty of cold water. The cold water can be cupped in your hands and the eye immersed in it, and by blinking repeatedly the paint remover can be washed out. The same can be done in a dish of water or by sponging with a clean sponge. If pain persists it is advisable to see a doctor.

When using Paint Removers:

Cover surrounding areas well.

Mask off any fittings that are close to the item being stripped.

Paint removers will damage:

Plastics, Perspex, Rubber, Carpet, Carpet tiles, Rubber tiles, Cork tiles, Polished or Varnished floors, Light switches (Brass, Aluminium or Plastic) Polished furniture, Fabrics. Door fittings and many other items.

4.2 Neutralising liquid/chemical paint removers.

It is very important to read the fact sheets that are supplied with the various paint removers To know how to use and neutralise the surface when stripped.

Solvent paint remover

After stripping surfaces with paint remover the surface must be thoroughly cleaned to remove any residue as this will retard the drying of the paint that is to be applied

The surface must then be neutralised I

Solvent types can be washed with water. This may raise the grain giving extra sanding problems. Washing with white spirit will also neutralise the timber without raising the grain. Some need to be washed down with methylated spirit

Caustic type

Must be washed well with water and neutralised with white vinegar.

4.3 Comparison of Performance and Cost of Various Methods.

Key learning points

- The advantages and disadvantages of paint removal methods

It is difficult to define which method is most cost effective as the nature of the work required to be carried out will determine the type of paint removal that is most appropriate.

The following are the advantages and disadvantages of each method.

Paint removal using Gas Torches:

Advantages:

- The fastest method of paint removal
- Ideal to remove paint quickly from large areas indoors or outdoors.

Disadvantages:

- Working indoors can be difficult. Wooden floors, carpets etc. can be easily damaged
- Carved woodwork will be damaged
- Not suitable for removing paint near glass.
- Not suitable for removing paint from light metal
- Not suitable for removing paint from plaster

Hot Air Gun:**Advantages:**

- Can be used indoors or outdoors.
- Much safer for working indoors as there are no flames
- Heat can be controlled easily
- Can remove paint near glass by fitting attachment
- Does not scorch the wood

Disadvantages:

- Much slower than gas torches
- Not suitable for carved work
- Not suitable for removing paint from light metal
- Not suitable for removing paint from plaster:

Infra Red Method**Advantages:**

- Can be used indoors or outdoors
- Very safe indoors as there is are no flames
- Silent
- Strips paint completely at low temperature
- Work well near glass
- Can be used with hands free attachment

Disadvantages:

- Costly compared to the other methods
- Not suitable for carved work
- Not suitable for removing paint from light metal
- Not suitable for removing paint from plaster

Paint Removers:**Advantages:**

- Ideal for removing varnish from surfaces that are to be re-varnished
- Suitable for carved work
- Suitable for removing paint from light metal
- Suitable for removing paint from plaster
- Suitable for working near glass

Disadvantages:

- Can be messy
- Can be slow
- Expensive. Can be time consuming
- Can damage any type of surrounding surfaces. Masking up and covering essential
- Gives off strong fumes

4.4 Costing, Materials and Labour

Key learning points

- Calculate the cost of painting a given area

You have been invited to tender for the painting of a boardroom. The specification is for two coats of white matt emulsion on the ceiling, three coats of soft sheen emulsion on the walls and the woodwork is not to be painted.

The room measures

8 metres long, 3.5 metres wide and 2.5 metres high. The price of the paint is €9 per litre for the matt and €11 per litre for the soft sheen. One litre of matt emulsion will cover 10 m² and one litre of soft sheen will cover 12 m²

The job will take 3 days at 9 hours per day and €100 must be added to cover masking tape, filler and general preparation.

The company charges €33 per hour. Submit a price for the job using the information above.

$$\text{Area of Ceiling} = 8\text{m} \times 3.5\text{m} = 28\text{m}^2$$

$$\text{Area of Walls} = (8\text{m} + 3.5\text{m} + 8\text{m} + 3.5) \times 2.5 = 57.5\text{m}^2$$

$$\text{Paint for ceiling is } (28 \div 10) \times 2 = 5.6 \text{ rounded to } 6\text{lt}$$

$$\text{Cost of paint for ceiling} = 6 \times 9 = \text{€}54.00$$

$$\text{Paint for walls} = (57.5 \div 12) \times 3 = 14.3\text{lt. rounded to } 15\text{lt}$$

$$\text{Cost of paint for walls} = 15 \times 11 = \text{€}165.00$$

$$\text{Total Cost of Paint} = \text{€}219.00$$

$$\text{Cost of Labour} = (3 \times 9) \times 33 = 27 \times \text{€}33.00 = \text{€}891.00$$

$$+ \text{Masking tape, filler etc} = \text{€}100.00$$

$$\text{Total cost} = \text{€}1,210$$

Summary

Having covered a variety of methods of paint removal you should now be in a position to select the most appropriate. In certain situations more than one method may be desirable. The safety requirements of the selected methods must always be observed before starting a job with the protection of yourself and others in mind. New products will regularly come on the market and should be tested for their effectiveness.

Paint removal is a very important skill to learn and develop, and attention to cleanliness of the work area and removal of waste materials is a vital element of this task.

Suggested exercises

Exercise 1

- Select a previously painted moulded panel
- Using a hot air gun remove all the paint and bring it forward ready for priming.

Exercise 2

- Select a previously varnished panel
- Using a solvent paint remover strip off all the varnish and bring it forward ready for varnishing.

Sample Questions

- Q.1 Name three methods of paint removal available to the painter
- Q.2 Before beginning to burn off with a gas torch what safety precautions must be put in place.
- Q.3. A varnished door in poor condition must be re-varnished. What is the most suitable method. Give reasons why you selected this method.
- Q.4.What danger can confront the painter when using solvent paint remover indoors?
- Q.5 How should a minor burn from a gas torch be treated?
- Q.6. What tools are necessary to have when burning off?
- Q7.When burning off what personal protective equipment should you have to ensure your personal safety
- Q.8. You have been asked to tender for the painting of a concert hall The specification is for two coats of white matt emulsion on the ceiling two coats of acrylic eggshell on the walls and the woodwork which is varnished is not to be painted.

The room measures:

20metres long, 15metres wide and 4metres high. The price of the paint is €8 per litre for the matt and €12 per litre for the eggshell. One litre of matt emulsion will cover 10 m² and one litre of soft sheen will cover 15 m²

The job will take 5 days at 8 hours per day and €150 must be added to cover masking tape, filler and general preparation.

The company charges €35 per hour.

Submit a price for the job using the information above.

Suggested Reading

Books

Painting and Decorating

Author Roy Hughes

Websites

<http://www.defra.gov.uk/environment/chemicals/lead/>

S O L A S

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