

# **OLD LEAD PAINTED SURFACES**

## **A guide on repainting and removal for DIY and professional painters and decorators**

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### **1) Introduction**

Lead has been a valuable ally and contributor to mankind's development over many years and still finds widespread uses in today's modern world. Lead, however, is poisonous to humans and, even though its use has declined substantially in recent years, there is a continuing need to ensure that exposure to lead is minimised and adequately controlled to protect health.

Lead based pigments were once widely used in decorative paints, applied in and around homes and to other buildings. Whilst these pigments have not been used for many decades in paints, old lead painted surfaces can still be found. Under certain circumstances, these represent one possible source of exposure to lead.

UK decorative paint suppliers want to ensure that the public and professional painters and decorators continue to be aware of the potential risks in homes, commercial properties and public buildings that are associated with exposure to old painted surfaces containing lead.

The adoption of the best practices, which protect decorators, and others likely to be affected by exposure to any disturbed old lead painted surfaces, is a key requirement in the process of removal and repainting activities.

This booklet, which replaces earlier Paintmakers Association and British Coatings Federation publications on the subject of lead in decorative paints, explains these hazards. It has been produced to reflect current understanding of the ways in which lead-containing paints can impact on health, and how lead from old painted surfaces can get into the environment.

Guidance is provided on the ways in which exposure can be reduced when removing and renovating old lead painted surfaces.

On a note of caution, it should be remembered that old lead painted surfaces are not the only source of lead in the environment and, dependent on the local circumstances, may not be the most significant. The guidance in this publication will help to eliminate lead painted surfaces as a source of contamination; other measures may need to be taken to deal with other types of lead exposure.

### **2) Sources of lead and exposure**

For many centuries, mankind has used lead widely to support and develop living standards and life styles. Whilst the uses of lead have reduced over the years, and in recent decades significantly, lead itself is not destroyed and a cumulative build-up of lead in the environment has inevitably occurred. As a result, lead is found throughout the environment and can be found in the soil, in drinking water, in food and drinks, in household and other dusts and in the air. Much of today's concerns about the hazards of lead are a legacy of its use, from many hundreds of years in the past.

It comes from many sources including lead water pipes, building components, leaded petrols, industrial processes, household items, such as lead-glazed pottery and porcelain, hobby products and lead painted surfaces.

People can get lead into their bodies if they:

- put their hands or other objects that are contaminated with lead-containing dusts into their mouths
- ingest soil, dusts or particles containing lead
- breathe in dusts or fumes containing lead

Old lead painted surfaces, where these are present (see Section 4), can be an important source of exposure in the home and in other buildings and public places. Old lead painted surfaces are of particular concern which:

- are allowed to deteriorate and which are flaking, cracking or chipping
- rub and chip or form dusts
- are accessible to children, who might chew or suck the painted surface

Old lead painted surfaces that are in good condition, are overcoated with modern paints and then are kept in good condition, are normally not likely to be a hazard.

Inappropriate preparation and removal of surfaces containing old lead paint, during renovation and repainting work, can create an additional source of lead-containing dusts and fumes, that can be both ingested and inhaled.

### 3) Effects of lead

Lead is a hazardous substance. It can be breathed in or it can be swallowed in the form of paint chips, dust or dirt containing lead or in drinking water or in food.

High lead blood levels can have very serious health consequences.

Some studies point to possible health consequences to children from low levels of lead in the blood.

Very young children would be particularly vulnerable to these potential adverse health effects of elevated levels of lead in the blood. Children absorb the lead mostly by eating it or by touching contaminated dust or soil and then putting their fingers into their mouths. Unnecessary exposure of children to lead should be eliminated as a precautionary measure.

If you think that your health, or the health of any member of your family may have been affected by lead, you should contact your doctor immediately.

### 4) Where old lead painted surfaces can be found

It is important to recognise that the hazards of lead paint are generally restricted to old painted wooden or metal surfaces.

**If the house or the building in question has been constructed since the 1970s or the original painted surfaces in an older home or building have been removed and repainted within this period, it is extremely unlikely that lead-containing paints will be present.**

Prior to the early 1960s white lead (lead carbonate/lead sulphate) was the principal white pigment in primers and topcoats applied to wooden surfaces inside and outside homes and other buildings. Doors, architraves, window frames and sills, stairs and banisters, skirting boards, weatherboards, door frames and barge boards are examples of where lead based paints might be found.

Whilst the use of white lead in professional and retail decorative paints was generally replaced by alternative

pigments during the 1950s, there was an inevitable time lag in which products in the supply chain continued to be used by professional decorators and do-it-yourselfers after this period.

White lead based paints continued to be available to professional decorators for specialist applications, finding uses in commercial properties, public buildings and institutions. Coatings containing low levels of white lead also were used up to the early 80s for the application of a thin primer coat on industrially manufactured, pre-fabricated window and door frames. The use of white lead based paints is now restricted by law and they can only be used for the renovation and maintenance of historical buildings and monuments, with prior approval.

In addition to the use of white lead in paints for wooden surfaces, some red, yellow, orange or green lead-based pigments (lead chromates) found limited uses in certain coloured gloss paints and wall paints. Decorative paint manufacturers discontinued the uses of these in the early 1970s, the pigments being replaced by non-lead alternatives. Legislation now prevents the sale of paints containing these pigments to the public.

White lead and lead chromates continue to be allowed in artists' colours and specialist model and hobby paints.

In the past, other lead-based pigments have found uses in anti-corrosive coatings for metal surfaces. Red lead and calcium plumbate primers might be found on garden gates and railings, guttering and downpipes and other external iron and steel work. Again, the use of this type of coating has declined in recent decades, as paint manufacturers have introduced alternatives. Legislation now prevents the sale of these lead based primers to the public.

They are still available for application by professional decorators and for use in industrial processes. They might well be present on articles and items around the home, garage and garden.

**Whilst safe handling of lead painted surfaces in domestic homes is one concern, professional decorators and builders should also be aware of the possible presence of lead paints in commercial properties, industrial sites and institutional buildings such as schools, hospitals etc and take appropriate precautions when removing or renovating surfaces.**

## 5) Is lead present in old painted surfaces?

To be absolutely certain whether or not lead-containing paint is present on any particular surface, the paint needs to be tested by a specialist laboratory<sup>1</sup> or a professional decorator<sup>2</sup>, knowledgeable about the subject.

Lead test kits, that give a simple indication of the presence of lead, are available from trade counters, some retail outlets or directly from the distributor<sup>3</sup>. If the instructions for use are followed carefully, and the test paper shows a positive response, then lead is present. However, a negative reading should not be relied upon to show the absence of lead.

<sup>1</sup> Details of analytical laboratories which can carry out lead testing are available from UKAS (Telephone: 0181 943 6840)

<sup>2</sup> Contact the following for further information:

Painters and Decorators Federation, 82 New Cavendish Street, London, W1M 8A1 (Telephone: (1171 58(1 5588, Fax: 01 71 631 3872)

British Decorators Association, 32 Coton Road, Nuneaton, CV11 5TW Telephone: 01203 353776, Fax: 01203 3545131

Scottish Decorators Federation, 222 Queensferry Road, Edinburgh, EH4 2BN (Telephone: (1131 343 33(11). Fax: 0131 315 2289)

Northern Ireland Master Painters Association, 6 The Square, Ballygowan, Newtownards, 01.23 611U (Telephone and Fax: 01238 528384)

The Guild of Master Craftsmen, 166 High Street, Lewes BN7 1XU (Telephone: 01273 478449, Fax: 01273 478606)

<sup>3</sup> Available by post from J H Ratcliffe and Co Ltd, 135A Linaker Street, Southport, PR8 5DF, enclosing a cheque for £14.69 (inclusive of VAT and postage), payable to J H Ratcliffe and Co Ltd.

## 6) What should be done?

Whilst lead is a hazardous substance, it is important to realise that there is only a risk if the paint film is unsound or is disturbed.

If the lead painted surface is in good condition and/or is already protected with non-lead containing paints and it is maintained in a good condition, it should be appreciated that removal may result in a greater exposure to lead dusts and particles, than would otherwise occur from leaving the film undisturbed.

Old lead painted surfaces need only be treated or removed where the film is flaking or chipping or when dusts and particles are present or where there is a possibility of the painted surface being chewed or sucked by children.

When remedial work is carried out, the precautions set out in Section 7 should be carefully followed both by professional decorators and by do-it-yourselfers.

Do-it-yourselfers who are in any way uncertain about their ability to follow these precautions should consult a professional decorator.

## **7) Renovation and removal of old lead-containing paints**

## 7.1) Introduction

Regardless of who carries out the work, it is imperative that:

- all steps are taken to avoid the creation of lead containing dusts and fumes
- anyone not involved in the work is prohibited from the area, and preferably the building concerned, until the area has been thoroughly and effectively cleaned

Children and pregnant women should not be present in any area where renovation work, which involves the disturbance of lead-containing paint surfaces or the removal of painted surfaces, takes place. They should not reoccupy that area until it has been thoroughly and effectively cleaned.

The decision to remove old lead containing paint should not be made lightly. If the paint is in good condition, it is often a safer option to carefully prepare the existing surface and to repaint or cover it (see Sections 6 and 7.2).

Where old lead paint is being renovated or removed by professional painters and decorators, the relevant requirements of the Health and Safety at Work etc Act, the Control of Substances Hazardous to Health Regulations and the Control of Lead at Work Regulations must be complied with before any work commences.

## 7.2) Repainting of old lead painted surfaces

To prepare surfaces in good condition (no flaking, abrasion or loss of adhesion from the underlying surface) for repainting, the surface should be lightly rubbed down wet with waterproof abrasive paper to provide the key for the new coats of paint. The debris from rubbing down should not be allowed to dry out and form dust. It should be removed with a damp rag and the rag, abrasive paper and all other debris placed in a sealed, plastic bag for disposal. Doing the job in this way will avoid the creation of lead-containing dust and contamination. Redecoration can then be carried out using an appropriate primer, undercoat and gloss system. It is then important to maintain the surfaces in good condition.

In the case of:

- walls and ceilings: these are best treated with wallcoverings or lining paper painted with emulsion paints
- doors: a specialist stripping company, which can remove the paint safely and completely in stripping baths, can be used.

## 7.3) Removal and disposal of old lead painted surfaces and repainting

If the decision has been made to remove old lead paint, it is important that all of the paint is removed. Following the advice below, surfaces can be prepared safely, prior to repainting with an appropriate paint system.

### 7.3.1) Preparation for removal

During removal or disturbance of any painted surface that is thought to contain lead, these instructions must be followed:

- keep all other people away from the area whilst working, particularly children and pregnant women
- remove furniture, soft furnishings, curtains and carpeting, wherever possible. If this cannot be done, cover these and all other permanent items (including the floor) with plastic sheeting sealed with heavy duty tape. Beware of slipping on these surfaces
- seal off the work area with heavy duty plastic sheets to collect paint flakes, dust etc and cover all openings, including doors and air ducts for any heating and cooling systems

- maintain plastic sheeting so that as soon as a tear is detected, it can be repaired or replaced
- wear overalls, shoe covers and rubber gloves within the work area, and remove them before leaving the area
- when working outside, contamination of soil should be avoided. Cover all lawns, garden beds etc in the near vicinity with heavy-duty plastic sheets. Avoid working in windy conditions.

### 7.3.2) Removal

To remove the old paint,  
**EITHER**

- use a chemical paint stripper, ensuring that all the instructions on the container are carefully followed. A suitable face mask to protect from exposure to solvent fumes may be required<sup>1</sup>. Such masks will not protect against dusts and should not be used for such purposes. If stripper residues are allowed to dry before removal, the clean up instructions shown below should be followed

**OR**

- use a hot air gun to soften the paint film sufficiently to be able to scrape it off. The softened paint should be scraped immediately into a suitable container before it rehardens. A suitable face mask to protect from exposure to lead containing dusts may be required<sup>2</sup>. Take care that the paint film does not burn. Any subsequent surface preparation should be done wet with waterproof abrasive paper.

**DO NOT**

- rub down with dry sandpaper, as this will put lead-rich dust into the air and into the rest of the house
- rub down with a power sander or use other powered tools, such as drills, planers etc, which disturb the painted surface. Such tools would put lead dust into the air, even if fitted with dust collection bags. The filters on these are unlikely to trap very fine, lead containing dusts
- burn off the paint with a blow-lamp or gas torch, as this will produce lead-containing fumes when the paint is burnt.

1 Contact your retailer or trade merchant for suitable solvent face masks

2 Contact your retailer or trade merchant for suitable dust masks

### 7.3.3) Surface clean up prior to repainting

- thoroughly wash all surfaces, both those from which lead containing paints have been removed and others in the work area, with a solution of dishwasher detergent<sup>1</sup> in hot water and then rinse with clean water
- vacuum all surfaces with a vacuum cleaner fitted with high efficiency particle air (HEPA) filter<sup>2</sup>. Do not use a normal vacuum cleaner as the filters are not fine enough to retain the lead-containing dust.

1 These are triphosphate based detergents, which are an efficient reagent for complexing lead

2 These are often quoted as complying with British standard BS 5415, or are referred to as S-class filters. Contact your local equipment hire shop or retailer for suitable equipment.

### 7.3.4) Disposal of debris

- place all debris, including dust masks and filters, in plastic bags and seal them with tape
- householders should place the bags in the dustbin

- professional painters should dispose of the waste in accordance with the Environmental Protection (Duty of Care) Regulations 1992. Lead-containing paint wastes do not fall within the definition of special wastes, but the Environment Agency/Scottish Environmental Protection Agency may classify them as such. Professional painters are advised to check with their local waste regulator on appropriate disposal routes

- clean up all debris frequently, as well as at the end of each day. Remove all debris from the work area before redecorating.

#### **DO NOT**

- burn or incinerate lead-containing wastes.

#### **7.3.5) Personal cleanliness**

- all people involved in the work should shower after the work has finished
- smoking, eating and drinking should be strictly prohibited in the work area
- all clothing and overalls, gloves etc should be washed separately from general household washing.

#### **7.3.6) Repainting**

Repainting of the prepared surface can be carried out using an appropriate primer, undercoat and gloss system.

### **8) Concerns**

- What should I do if I am in the middle of redecorating?

If there are concerns that old lead paint has been disturbed whilst preparing surfaces, all dusts and debris should be cleaned up, as described above. The surfaces in question then should be tested for the presence of lead (see Section 5). If there is lead paint present, renovation and redecoration should be carried out in accordance with the guidance above.

- I am concerned that I am, or my family is, suffering from lead poisoning.

Contact your doctor.