SAFETY & HEALTH GUIDANCE NOTE 59

Personal Health Protection during the Application of Tar Containing Coatings

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1. INTRODUCTION

This guidance note is designed to assist in the establishment of safe working practices and environments when using coal tar based paints.

The Marine and Protective Coatings industries have used paints modified by the incorporation of tar (coal tar, coal tar pitch, tar acids, petroleum tar, petroleum tar pitch) as anticorrosive coatings for many years.

Tars and pitches have been classified as carcinogens (cancer causing) due to the presence within the tar of Poly Aromatic Hydrocarbon (PAH) compounds. The classification is based on test results from benz-α-pyrene and other PAH compounds which are known human carcinogens.

Although in recent years the use of coal tar based paints has been declining, coal tar and pitch modified coatings are still widely used. Three generic types are available from International Paint:

- **COAL TAR EPOXY** Intertuf’s 132, 284, 548, 564, 583, 606, 674, 727, 702, 708, 709, 733, 743, 923, 978
- **PITCH URETHANE** Intertuf’s 133, 463
- **VINYL TAR** Intertuf’s 23, 55

**NOTE:** International Paint has decided to withdraw completely from the manufacture and sale of coal tar containing coatings from 01/01/06. Supply of product for outstanding contracts will continue until the contractual obligations are fully met.

2. SCOPE

This guidance note covers health protection when using coal tar* containing paints and should be read in conjunction with:

- **APPLICATION HEALTH & SAFETY GUIDANCE NOTE - Spray Painting**
- **SAFETY GUIDANCE NOTE 36 - Occupational Health Management Aspects Of Spraying Epoxy Coatings**

This guidance is general. The product container label and Material Safety Data Sheet (MSDS) for specific products should be consulted to identify specific hazards. All relevant national, or local regulations should be complied with.

* In the remainder of this document the term “coal tar” is used as a generic term and covers all of the potential sources of PAHs mentioned in the Introduction to this guidance note.
3. HEALTH HAZARDS

Coal tar is classified as a Group I carcinogen. This means that there is sufficient evidence to prove a definite link between exposure to coal tar and human and animal cancers. Skin cancers can be caused by contact with coal tar. It is impossible to predict a safe level of risk as there is potentially no safe level of exposure.

Coal tar can give rise to other skin problems such as irritation, eczema and benign growths (warts). Coal tar can make the skin photosensitive leaving the skin susceptible to sensitisation from exposure to ultra-violet and sunlight.

Coal tar coatings, like all solvent based coatings, can cause skin damage by wetting and defatting the skin. This can lead to dry and cracked skin which reduces the skin's natural barrier properties, allowing substances to penetrate more easily.

The other significant hazard associated with all solvent based coatings is damage to the lungs from inhalation of paint spray particles and solvent vapours. Studies have shown that skin absorption is a much more significant source of PAHs than the inhalation route.

The hazards from spray dust and dry spray are much less than from the wet paint. The potential for exposure to coal tar is greatly reduced as the coal tar is effectively "bound up" in the matrix of the paint.

The risk of exposure to coal tar is higher in spray application than in brush or roller application.

The use of appropriate Personal Protective Equipment (PPE) and good hygiene practices can reduce the potential risks to acceptable levels.

4. PEOPLE AT RISK

Obviously the nearer people are to the spraying of coal tar containing coatings the greater the risk that they may be exposed to paint or dryspray. e.g. in a typical spray application this includes some or all of the following trades:

- Spray hands
- Potman
- Cherry picker driver
- Other trades working in the environment, for example fitters, supervisory staff, technical service representatives.
- Others who may come into contact with dryspray after painting has finished, for example scaffolders, clean up teams.

5. PROTECTION

5.1 GOOD WORKING PRACTICE

The most effective way of protecting people is to have ways of working that keep most staff away from any contact at all with paint, paint spray and dryspray.

During Spraying

When spraying is taking place the only people in the area should be the sprayhand(s) and cherry picker driver. Potmen, supervisory staff and technical service representatives should all be either outside of the painting halls/cells or upwind of any exterior applications.

After Spraying

To reduce the potential of exposure to dryspray this should be removed and should not be allowed to blow around in the air. Between coats of coal tar coating, if dryspray is to be removed from scaffolding boards, ledges, stiffeners, etc it should be done by gentle brushing or vacuuming. Dryspray should not be blown from surfaces using air lines (if this cannot be avoided then use the lowest air pressure possible).

After all painting has finished, dryspray which has fallen onto staging, protective masking, etc should be damped down, swept up, and disposed of in accordance with local regulations.
5.2 Clothing and Equipment (PPE)

Clothing

All members of the application team (sprayhand, cherry picker driver, potman, supervisors, technical service representative) should wear:

- Long sleeve, long leg overalls
- A second disposable overall with a hood worn over the cotton overall
- Long sleeve gloves
- Rigboots, that is, boots which cover the ankles and lower legs

Respiratory Protection

The sprayhand and any assistant/driver with him should wear respiratory protection against solvents. This should include full protection of all face skin.

Best practice is to wear a full face mask with tear-off vision strips. This may be airfed, or equipped with solvent and particulate filters. Application of pitch urethane coatings should preferably be carried out whilst wearing airfed equipment.

Other people in the application team should wear half face respirators with solvent and particulate filters.

Eye Protection

Everyone should wear eye protection, full face mask or, (take out) at least safety goggles or glasses. It is important that potmen protect their eyes from splashes during mixing and pouring operations.

Skin Protection

Where skin is exposed, for example the face skin of people wearing half face masks, a proprietary barrier cream (not petroleum jelly) should be applied. However, it is always better to cover skin than to use barrier creams.

Heat Stress

In hot climates an overall worn next to the skin can become completely wet with sweat. In this case it is possible for PAHs in paint on the outer surface of the overall to be drawn through and irritate the skin. To prevent this it is recommended that two overalls be worn.

However, wearing two overalls may subject people to undesirable heat stress, especially if the inner overall is thick. It is possible that a single impervious overall which cannot be penetrated by paint or sweat may provide sufficient protection. Local protective clothing suppliers should be consulted to help in selection.

Wearing Practice

To avoid contact with coal tar containing coatings overalls should be fully done up at all times with the hood worn over the head and pulled tightly around the face.

Inner cotton overalls may be tucked inside boots and gloves. Disposable outer overalls should be worn over the top of boots and gloves. Overalls should have poppers, velcro or elasticated cuffs to ensure that the sleeve stays in place at the wrist and that there is no exposed skin between overall and glove. Adhesive tape could also be used to secure the sleeve/gloves. Gloves must have long sleeves.

Similar methods should be used to make sure that there is no gap between trouser legs and boots. With rigboots, taping is not necessary.

Boots with steel toe caps and at least calf length tops should be worn. Shoes and sandals should not be worn.

Replacement and Cleaning Practice
Disposable overalls should be replaced every time they are removed and at least daily. Discarded disposable overalls should be disposed of correctly.

Cotton overalls should be changed and washed after every shift when applying coal tar containing coatings.

If there is any paint breakthrough to the inside of cotton overalls they should be replaced.

Gloves should be replaced if there is any sign of solvent breakthrough, or as soon as they become dirty on the inside. Wearing of light cotton inner gloves could be considered. Fabric sweat bands in hard hats should be washed daily and the hats cleaned with detergent and water to remove any dirt and dryspray contamination.

Full face and half masks should be cleaned with detergent and water inside and out and stored in a dedicated place at the end of each shift.

Half mask filter cartridges should be changed daily, or more frequently if breakthrough occurs. They should be disposed of correctly at the end of each shift and new ones fitted at the beginning of the next shift. Ensure that the correct cartridges, suitable for the application of coal tar containing coatings are used.

**Personal Hygiene**

The application team should remove outer overalls, wash their hands thoroughly before going to the toilet and wash their faces before smoking, drinking or eating.

Transfer of irritant materials to areas of the skin which are more sensitive than the hands can be very unpleasant and is to be avoided.

After working, or as soon as possible after coming into contact with wet paint, or dryspray the application team should take a shower. These staff should not change into other clothes without having a shower, or go home in working clothes.

6. **FIRST AID**

**Skin**

There are no specific antidotes for skin irritation. Any rashes should be gently but thoroughly cleaned and a soothing anti-inflammatory type cream applied. Affected areas should recover in a few days.

More serious skin conditions should immediately be referred to a doctor.

**Eyes**

If wet paint or dryspray gets into the eyes then they should be washed with water or saline solution for at least ten minutes. If discomfort continues the sufferer should see a doctor as soon as possible.

**Lungs**

Any respiratory symptoms should be referred to a doctor immediately.

7. **TRAINING**

**Ways of Working**

People do not change behaviour and ways of working simply as the result of a single instruction. The best practice described above needs to be introduced with full training for all personnel and will need clear procedures plus constant reinforcement from management and supervisors.

**Clothing and Equipment**

People need to be trained in the detail of wearing protective clothing e.g. the overlap of sleeves/gloves and trousers/boots, the wearing of hoods and the use of barrier cream.
Personal Hygiene

The disciplines of proper working are a very personal area. However they need to be enforced and supervised if people are to be protected from skin problems.

Important Note

Product Data Sheets, Material Safety Data Sheets and the container labels together form an integral information system about International Paint products. Copies are available from International Paint on request.
PERSONAL HEALTH PROTECTION

DURING THE APPLICATION OF

COAL TAR CONTAINING COATINGS

DO’S and DON’T’S

DO

• Wear an overall with full length sleeves and legs
• Wear a second disposable overall with a hood
• Keep the buttons and zips done up and the hood over your head
• Wear long sleeve gloves and boots
• Make sure there are no gaps or exposed skin at wrist or ankle
• Wear a full face mask or a half mask, goggles and barrier cream

DO

• Keep everyone out of the area except the application team
• After application is finished hose down dryspray on staging, etc. with water and remove it

DO

• Wash hands before eating, drinking or smoking
• Shower before going home or as soon as possible if in contact with wet paint or dryspray

DO

• Throw away your disposable overalls every day
• Wash your face mask and the inside of your helmet every day
• Wear a clean overall and helmet sweatband every day
• Replace your gloves as soon as the inside looks dirty

DON’T

• Allow wet paint or dryspray to come into contact with your skin
• Allow wet paint or dryspray to remain in contact with your skin for more than half an hour, especially if your skin is wet or sweaty