

GUIDANCE NOTES

SAFE WORKING PRACTICES FOR PAINTING PROJECTS

WWW.AWLGRIP.COM



Improvements in health and safety for applicators continues to be a primary focus for Awlgrip along with helping to reduce the impact of painting processes on the environment. With this in mind, Awlgrip has developed these guidance notes, together with a series of videos, to explain and demonstrate the practical steps required to ensure applicators' health and safety is protected at all times.

These guidance notes cover the health and safety precautions to be adopted during the following aspects of painting projects:

- Use of personal protective equipment (PPE)
- Hazards
- First Aid and hygiene
- The spraying process
- Handling antifouling
- Handling epoxy fairing compounds
- Use of inspection tools

The video clips are available at www.awlgrip.com



Note: The video clips cover only excerpts from the Guidance Notes and are not intended to be comprehensive; they should always be used in conjunction with the Guidance Notes. More information is available from your local Awlgrip representative and on www.awlgrip.com.

GENERAL GOOD PRACTICE

When carrying out the various stages of preparation and painting on a yacht it is vital that the risks are considered and that all necessary precautions are taken.

It is important to always comply with safety rules/requirements and boatyard regulations. Care should be taken to ensure all workers are aware of them.



BEFORE YOU START: Material Safety Data Sheets (MSDS) should be checked for information about the specific hazards of the materials to be used and the Product Data Sheets (PDS) for information on how they should be used. When using antifouling the specific legal requirements within the country of application should also be checked.

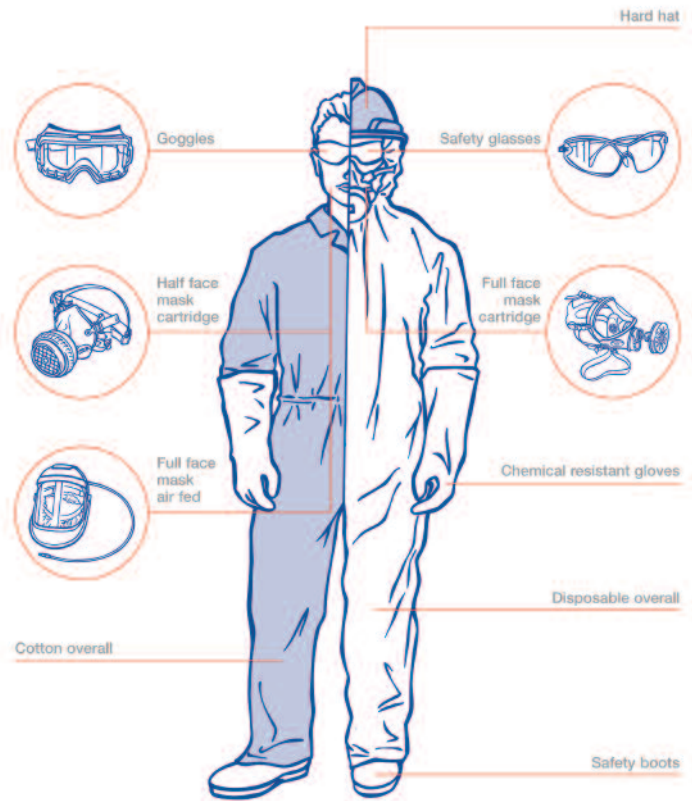
USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

It is important to wear the appropriate personal protective equipment (PPE) to minimise the risk from equipment and materials during yacht maintenance.

PRECAUTIONS

Throughout the preparation, application and sanding stages the following precautionary steps should be taken:

- A long-sleeve, long-legged cotton overall should always be worn. This should preferably be a minimum of 60% cotton and should be white for work in hot climates. A second disposable overall with a hood should be worn over the cotton overalls. Overalls should fit well and not impair movement
- Chemical-resistant, long-sleeve gloves or gauntlets which overlap the overalls should be worn. They can protect against exposure from solvents and also help minimise physical damage from cuts and bruises. They should fit well and not impair dexterity
- All footwear should have steel toe-caps. Rig boots which cover the ankles and lower legs are strongly recommended
- Eye protection is mandatory for all members of the application team. A full-face mask, safety goggles or safety spectacles should be worn. The lens or face material should be resistant to the solvent being used
- Anyone likely to come into contact with spray mists or vapours must wear appropriate respiratory protection



The spray-hand and any assistants should wear respiratory protection against solvents which also protects the entire face. A full-face mask with tear-off vision strips is recommended. These may be air-fed or equipped with solvent and particulate filters. The rest of the application team should wear half-face respirators with solvent and particulate filters. However, a full-face mask with an air-fed hood must be worn by the spray-hand and any assistants spraying polyurethanes such as Awlgrip® or Awlcraft® 2000 topcoats.

A half-face respirator may be worn to avoid the inhalation of unpleasant and potentially harmful vapours from some amine curing agents. It is imperative that respiratory protective equipment is regularly tested for fit and all users are trained in how to test for leaks.

Respirators have cartridges filled with absorbent materials to prevent exposure to volatile, irritating and harmful toxics. However, it should be remembered that cartridge respirators **DO NOT** protect against an oxygen deficient atmosphere. Cartridges should be changed in accordance with manufacturers' recommendations or local legislative requirements as appropriate.

- Anyone likely to come into contact with dust generated during sanding must wear an appropriate dust mask. There are different types available and the mask appropriate for the job will depend upon the particle size of the dust involved
- Ear defenders are recommended for use in noisy environments and should be appropriate to the frequencies of sounds encountered
- Barrier cream can be used to protect the skin; however, this should always be used alongside and never in place of protective equipment, such as gloves or a visor

USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) continued...**MEASURES TO AVOID SKIN CONTACT WITH PAINT**

It is imperative that there is no exposed skin between sleeves and gloves so the use of overalls with poppers, velcro or elasticated cuffs is recommended. Adhesive tape may also be applied around the wrists to seal the overlap between the gloves and the overalls.

Precautions must be taken to ensure no exposed skin between the trouser legs and boots is present and hence calf-length rig boots are recommended. Shoes should not be worn.

During the application process overalls must be fully fastened at all times to avoid skin contact with paint. The hood must be worn over the head and pulled tightly around the face. Disposable outer overalls should be worn over the top of boots and gloves.

Disposable overalls should be replaced every time they are removed and changed at least daily whereas cotton overalls should be changed and washed after every shift. If there is any paint breakthrough to the inside of cotton overalls they should be replaced with a new pair.

Gloves should be replaced if there is any sign of solvent breakthrough or as soon as they become dirty inside.

Fabric sweat bands in hard hats should be washed daily; the hats should be cleaned with detergent and water to remove any dirt and dry-spray contamination.

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

**TRAINING**

In any paint application facility thorough training should be given on the use and importance of PPE. New employees must be trained in the use of PPE as part of their induction and must not commence painting work until this has been completed.

EMPLOYERS' RESPONSIBILITIES

Employers have a duty to provide suitable PPE free of charge to all employees and to ensure it is maintained, kept clean and replaced when necessary. It is also their duty to ensure that PPE is properly used and adequate information, instructions and training on its use is provided to the employees (see above) along with suitable storage facilities.

Employers must assess the risks to which their employees are exposed and the type of PPE required to ensure that all necessary precautions are taken.

Standards of protection afforded by PPE, and in particular glove technology, are constantly being improved and therefore it is recommended that the type of equipment provided to employees is regularly assessed and updated if necessary. Feedback should be provided to the PPE manufacturers of any problems experienced during its use.

HAZARDS



Awlgrip products provide excellent performance and finish for yacht topsides. In order to achieve this performance they contain some chemicals which are hazardous. However, these products can be used safely, without hurting people, by using these products in a professional manner such that the exposure is significantly reduced or, where possible, eliminated. In all circumstances the Material Safety Data Sheets and Product Data Sheets should be read carefully before paint is used so that the specific hazards associated with each product are fully understood.

HEALTH HAZARDS

Everyone within the vicinity of the painting process is potentially at risk, not just applicators, but others working in the environment also. Exposure to the hazardous substances involved with the painting process can damage health. Therefore the utmost care must be taken to minimise direct contact with these substances and avoid exposure to vapours, dust, dry-spray, spray mist and solvents.

Short term symptoms resulting from exposure can include:

- Irritant contact dermatitis
- Burns to skin and eyes
- Vomiting
- Irritation to nose, throat, lungs
- Headaches, dizziness, fatigue

Longer term exposure to these substances can cause:

- Allergic contact dermatitis
- Occupational asthma
- Reproductive system damage
- Kidney or liver damage
- "Painters Syndrome" - damage to the central nervous system
- Cancer

If skin becomes sensitised then a rash can be caused from the slightest contact with similar substances in the future. More rarely, long term exposure to certain substances used in some paints can lead to more serious conditions. These paints must be handled with extra care in order to eliminate exposure.

Another significant hazard from the use of paint is possible damage to the lungs resulting primarily from inhalation of solvent vapour, but also of fine paint spray particles. Solvents can affect the central nervous systems and particles can irritate the body both internally and externally.

HAZARDS continued...**SPRAYING HAZARDS**

Due to the high pressures involved during conventional air-atomised and airless spray application, paint injection injuries can occur. Injuries caused by the injection of paint under pressure into the body can be extremely serious and urgent medical attention is absolutely essential.

A few simple considerations follow that will help to minimise the risk of injury during spraying:

- When the equipment is pressurised **NEVER** look directly at the spray tip or bring the spray tip into close proximity with any part of the body
- Spray guns must **NEVER** be pointed directly at anyone
- Fingers must **NEVER** be placed over the spray tip
- No-one should carry out airless spraying unless fully trained in the correct use of the equipment, the hazards involved in spraying and the necessary action to take in the event of an accident
- All equipment should be earthed at all times as there is a potential danger of static electricity discharge
- Chlorinated solvents must never be sprayed
- Air hoses should be secure before spraying operations are started
- The spray gun trigger must be **LOCKED** before passing the gun to someone else
- Equipment must be depressurised when it is not in use

Spray painting equipment can be very noisy and can induce deafness so it is essential that all sources of noise comply with the local regulations in operation. Ear protection is recommended in circumstances where there will be excessive noise levels and should always be worn.

FIRE AND EXPLOSION

The hazardous environment produced during the spraying of flammable materials results in an increased risk of fire and explosion. All sources of ignition must be eliminated from the spray area. Common ignition sources such as the following must be avoided at all times:

- Electrical sparks and arcs from the discharge of static electricity from poorly earthed equipment
- Electrical short circuits
- Naked flames
- Lit cigarettes, cigars, pipes
- Portable battery equipment
- Hot surfaces (wires, metals)
- Equipment which could produce sparks (grinding wheels)
- Exothermic (heat-generating) chemical reactions, such as when two-component paints are left to “pot” before disposal

FIRST AID AND HYGIENE



In the event of exposure to paint or solvents, the following first aid activities should be undertaken immediately, followed by seeking medical advice:

SKIN

- Any rashes should be gently, but thoroughly, cleaned and an anti-inflammatory type cream applied. Note that there are no specific antidotes for skin irritation
- More serious skin conditions should immediately be referred to a doctor

EYES

- If wet paint or dry-spray gets into the eyes then the affected eye should be washed with copious amounts of water or saline solution for at least fifteen minutes. If discomfort continues a doctor should be consulted as soon as possible

BREATHING

- Any respiratory symptoms should be referred to a doctor or hospital immediately

HYGIENE

It is important to maintain a high level of hygiene while working with hazardous materials:

- Outer overalls, gloves and other personal protective equipment must be removed and hands washed thoroughly when leaving the application area
- Hands and face should be washed thoroughly before smoking, drinking or eating
- Showering is strongly recommended after working or as soon as possible after coming into contact with wet paint or dry-spray, and prior to changing into other clothing
- All clothing used during paint application should be stored separately from other clothing
- Food and drink should not be prepared or taken into spraying, storage or mixing areas

Hand washing facilities and other amenities should be provided for use on site. The amenity rooms should be free of all of the hazards associated with painting operations and be kept free of all potential contaminants.

Refer to **Section 1** for full details on the correct use of personal protective equipment which is intended to minimise exposure to hazardous substances.

EMERGENCY PROCEDURES: Emergency procedures must be put in place to deal with leaks, spills and uncontrolled releases of hazardous materials. Procedures should cover the clean up and disposal of these materials along with personal protection and any local regulatory requirements. It is crucial that all personnel should be appropriately trained in local emergency procedures.

THE SPRAYING PROCESS



METHODS AND HAZARDS

There are different methods of spray painting for different types of applications. Conventional low pressure compressed air spray painting is typically used for Awlgrip topcoats and low viscosity primers. This often gives extensive overspray, especially around cavities and corners. Application by conventional spray also often has high associated noise levels.

Airless spray painting is a high pressure application typically used for high viscosity primers. This carries a risk of injection injuries and static electricity build-up which could cause a spark.

Air-assisted airless spray painting is, for example, used when applying finishing primers. This application method uses less atomisation and produces less overspray than conventional methods, though again this method carries the risk of injection injuries.

Pressure pots used with spraying equipment are accompanied by various risks. They are an awkward manual handling hazard for the spraying team and they can be subject to over-pressurisation.

PRECAUTIONS

A few simple general considerations follow that will help to minimise the risk of injury and exposure:

- The mixing, pouring and reducing of paint must always be carried out in a well ventilated area
- Appropriate protective equipment should be worn at all times
- Spray guns must **NEVER** be directed towards other workers to ensure that they are not exposed to the spray of hazardous materials or the risk of injection injury
- All spills and splashes should be cleaned up immediately
- If any of the materials are splashed onto exposed parts of the body the affected area should be cleaned immediately with soap and water. You should never use paint reducers to clean areas of the body as they can be absorbed by the skin
- Any contaminated clothing should be removed and changed at the earliest opportunity
- Unused materials should be returned to their original containers; you should **NEVER** mix unused materials together
- Empty cans should be removed to a suitable place and allowed to dry before being disposed of in accordance with local regulations
- Any two pack materials allowed to “pot” before disposal should be isolated due to the potential for an exothermic (heat generating) reaction
- It is vital that all equipment is regularly inspected and maintained in good working order. For example, hoses should be regularly checked for leaks
- Appropriate materials should be used to capture drips or overspray. Absorbent materials such as paper or sawdust should not be used as they will increase the risk of fire or explosion
- All used cleaning rags and similar materials should be placed in metal containers with close fitting lids and, if practical, dampened with water
- All waste material should be disposed of in accordance with local regulations

THE SPRAYING PROCESS continued...

PAINT STORAGE

Paint and associated materials should be stored in accordance with the relevant local legislation but as a general rule the following guidelines should be followed:

- Flammable materials should be stored in tightly closed, clearly labelled containers
- Lids should be replaced after use
- Large solvent containers should be earthed during liquid transfer operations
- Paint should not be stored in the spray area

SPRAYING OUTSIDE

The following precautions should be taken:

- Use protective sheeting or screens to stop the spray mist travelling
- Mark out an exclusion zone with cones and tape and warning signs should be put up. This zone should only be entered by the application team and all other staff should be kept upwind of the spraying
- Avoid spraying in high winds to prevent spray mist carrying onto neighbouring spaces and unprotected personnel

SPRAYING IN CONFINED SPACES

There are a number of factors to consider when working in confined spaces:

- Assess whether the atmosphere contains, or will contain, sufficient oxygen during the whole process so normal respiratory functions can be maintained

If solvent vapours force air out of a confined space then the atmospheric oxygen levels may drop to dangerous levels. The solvent vapour levels should be controlled below the exposure limit. This can be done by ventilation or extraction of the confined space:

- Signs should be displayed outside the confined area to indicate that spraying is in progress
- Wearing a full-face mask and a second disposable overall are strongly recommended
- The extraction of a spray booth should be checked prior to application commencing and the airflow at the point of application should meet national requirements. All extraction and ventilation equipment should be maintained according to the supplier or installer's instructions
- When spraying in a booth the object being sprayed should always be between the sprayer and the exhaust air outlet
- Work should be carried out away from entry doors and these should carry a sign or indication that spraying is in progress
- Avoid standing or spraying into the airflow and minimise the time spent in a position between the object and the direction of the airflow
- If possible, objects should be sprayed on a turntable or a device that allows easy manoeuvring



THE SPRAYING PROCESS continued...**SPRAYING DO'S AND DON'TS****Before spraying:**

- Read and follow the health and safety instructions provided
- Put on all PPE, including a respirator, before entering the spray area
- Wear an overall with full-length sleeves and legs and a hood
- Keep the buttons and zips fully fastened
- Wear long-sleeve gloves and boots
- Make sure there are no gaps or exposed skin at your wrists and ankles
- Wear either a full-face mask or half-face mask with goggles

During spraying it is important to:

- Keep everyone out of the area except the application team
- Prevent or control exposure to mists and vapours as far as practicable

NEVER:

- Remove any PPE even for a short period of time
- Remove your face mask in the booth. Wait at least ten minutes or until the vapour is cleared before removing your respirator
- Wait until early asthma symptoms occur. It's too late then!

After spraying it is important to:

- Clean down any overspray
- Remove PPE starting from the outer layer
- Wash before eating, drinking or smoking
- Shower before going home or as soon as possible following contact with paint
- Wash face masks and inside helmets every day
- Replace gloves as soon as the inside looks dirty
- Store PPE outside the spray area when it is not in use

At any time DO NOT:

- Allow paint or dry-spray to come into contact with skin
- Allow rubbish to build up in the work area
- Allow horseplay in the work area
- Clean spray guns in an open workroom

HANDLING ANTIFOULINGS



Antifoulings must be handled, mixed and applied with care.

PREPARATION

It is recommended to sand the surface prior to the application of antifouling as this will achieve better adhesion when the antifouling is applied. If you are going to sand, the surface **MUST** always be wet. Antifoulings such as Awlstar Gold Label should **NEVER** be sanded dry due to the toxic nature of the paint.

Previous antifouling can be removed by scraping or applying an antifouling stripper - this tends to soften the old antifouling, but still needs to be scraped. It can also be removed by blasting, which is the easiest option.

The best way of protecting people is to work in a way that keeps most of the staff away from any contact with the paint spray or dry-spray. Protective clothing should be worn by anyone who will come into contact with the paint spray or dry-spray.

DURING APPLICATION

During spraying the only people in the area should be the sprayhand and his assistant or cherrypicker driver. Potmen and any supervisory staff should remain upwind of the spraying area.

The best working practice during spraying is to:

- Mark out an exclusion zone with cones and tapes
- Keep everyone out of the zone except the application team
- Keep everyone upwind of the sprayer

AFTER APPLICATION

Once spraying has been completed:

- Dry-spray should be removed to reduce exposure and should not be allowed to blow around in the open air
- Any areas where dry-spray can fall or blow onto people should be hosed down and dampened with water prior to removal
- Dry-spray should be removed by gentle brushing. It should not be blown off with air

HANDLING ANTIFOULINGS continued...**ANTIFOULING DO'S AND DON'TS**

There are a few points to remember when applying antifoulings:

DO:

- Wear a second disposable overall with a hood
- Wear an overall with full-length sleeves and legs
- 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 wrists and ankles
- Wear a full-face mask or half-mask, goggles and barrier cream
- Keep everyone out of the area except the application team
- After application is finished hose down overspray on staging, propeller wrapping, etc. with water and remove
- Wash before eating, drinking, smoking
- Shower before going home or as soon as possible if in contact with paint or dry-spray
- Throw away your disposable overall every day
- Wash your face mask and inside your helmet every day
- Wear a clean overall and helmet sweatband every shift
- Replace your gloves as soon as the inside looks dirty

DO NOT:

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

HANDLING EPOXY FAIRING COMPOUNDS



Epoxy fairing compounds, such as Awlfair, are used for repairs and cosmetic purposes such as profiling.

They are usually supplied as two components:

- **Part A** – The Base – an epoxy resin
- **Part B** – The Converter – amine-based

These two components are mixed in order to create a reaction.

HAZARDS

As with all chemicals in use in boatyards there are hazards to be aware of with the use of epoxies:

- When epoxies come into contact with skin they do not easily pass through it and they are not normally toxic to people internally. However, epoxies are an irritant and will cause red itchy rashes though these can be treated with soothing cream and normally heal after a few days
- The curing agents used in epoxy fairing compounds also carry the same risk as they have similar properties to epoxies therefore they can cause irritant rashes. Some are also corrosive meaning they could cause skin burns
- In certain circumstances epoxies and amines can penetrate the skin and pass into the bloodstream. This will cause the production of antibodies. If that happens then the affected person will have a reaction to the smallest presence of epoxies or amines and this will result in a severe irritant rash

The hazard presented by epoxy-based sanding dust is much lower than when dealing with wet product. Chemically the base and curing agent should have largely reacted with each other however, the dusts still contain some active materials and are a potential health hazard.

These hazards are:

- Dust can easily coat the skin
- Sweat caused by heavy work can lead to dust more easily sticking to skin, and accumulating, especially in the fold of the elbow joint
- Fine dust particles from wood, GRP and fillers are potentially harmful if breathed into the lungs

HANDLING EPOXY FAIRING COMPOUNDS continued...**PRECAUTIONS****1. Mixing and Application**

There are some basic precautions to take whilst applying any epoxy-based filler products.

As with any chemicals, you must take care whilst using these products and always read the label before use.

- Check awlgrip.com for up-to-date information and the relevant Material Safety Data Sheets
- To prevent sensitisation of the skin to epoxies or amines personal protective equipment must always be worn
- Anyone who becomes sensitised must seek medical advice immediately. It is important to remember that irritation is common in the workplace if protective equipment is not properly worn, whereas true sensitisation is relatively rare. Anyone who becomes sensitised may be permanently restricted from working with these materials in the future

Fillers and fairing compounds are generally a lot thicker than standard two-component epoxy paints and do not splash as easily, however care must still be taken to avoid direct contact.

- Avoid splashing product onto bare skin or into eyes
- Avoid skin contact via contamination of clothing
- Be aware that sweat will allow skin contact with the filler and that irritant rashes are therefore more likely

2. Sanding

When sanding epoxy fairing compounds it is recommended as a minimum that a half-face respirator is worn, capable of filtering out particulate matter. Anti-static, steel toe cap safety boots should again be worn.

A long-sleeve, long-leg cotton overall preferably with a hood and long-sleeve gloves should be worn, as should safety goggles or glasses.

The overalls, glove and boot overlaps should also be sealed with tape to stop dust from getting in.

Barrier cream should not be worn to protect face skin whilst sanding is in operation and it should not be used in place of protective clothing.

To summarise when care is taken in their use, epoxy fillers and fairing compounds can be used safely with little risk to the applicator.

USE OF INSPECTION TOOLS

Various tools are required in order to examine the different stages of preparation and application of coatings to pleasure craft.

The inspection equipment can be split into various categories. These are:

1. **Surface status equipment**
2. **Climatic conditions**
3. **Viscosity measurement**
4. **Paint film build**
5. **Hardness of cured fillers and resins**
6. **Adhesion**
7. **Visual aids**

SURFACE STATUS EQUIPMENT

Surface profile measurement

To measure the surface profile of metal surfaces prior to initial priming a Surface Profile Depth Micrometer is used. The surface profile is the average peak to valley depth which is produced during surface preparation.

The Surface Profile Depth Micrometer uses a sharp spring loaded needle protruding out of a flat base. The machine is set on glass and the needle is zeroed. The machine is then placed on the surface to be measured where needle enters into the profile and the gauge can be read. Multiple readings over the area are taken to obtain an average reading.

Surface Salt Contamination

Special test kits are available that will measure the salt level on a surface prior to painting.

Salt detection kits are only occasionally used now but as vessels increase in size use of this type of equipment should become more common.

Moisture Measurement

A Moisture Meter is an important tool required to ensure levels of moisture in GRP or FRP laminates below the waterline are below levels at which osmosis might occur or re-occur.

It is also useful to estimate the moisture levels in aged GRP or FRP laminates above the waterline prior to painting for the first time.

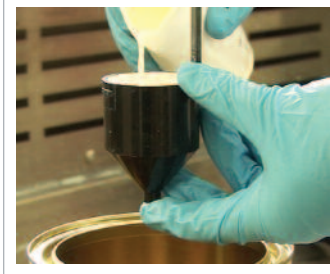
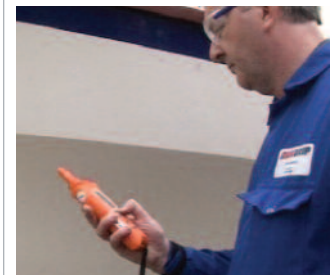
CLIMATIC CONDITIONS

Air Temperature and Humidity

As a minimum a unit capable of measuring air temperature and humidity is required in order to determine whether painting can commence. This is especially important when using high performance finishes as high humidity can have an adverse affect on flow, cure and gloss levels.

Dew Point

Additionally an instrument capable of measuring the surface dew point is desirable as moisture deposited on the surface when applying paint will reduce adhesion and lead to a range of other problems.



USE OF INSPECTION TOOLS continued...

VISCOSITY MEASUREMENT

A Zahn Flow Cup or other similar viscosity cup is used to measure viscosity. The time taken for the paint emerging from the cup to break into droplets from a constant stream is measured using a stop watch.

PAINT FILM BUILD

Wet Film Thickness

When paint is applied to the surface a Wet Film Thickness Gauge is required in order to measure the wet film build.

This is a quick and easy task and is important as film build is the critical factor at all times. It is far easier to monitor film builds during application than when the paint has cured. This helps to reduce costs as any necessary changes can be made during the application.

Dry Film Thickness

When the paint has cured a Dry Film Thickness Gauge is used to measure the film build. Two types are generally available for use on metallic and non-metallic substrates.

HARDNESS OF CURED FILLERS & RESINS

The simplest test that can be carried out on an epoxy fairing compound or laminate is to test the hardness of the cured resin or filler using a Shore D Durometer. This will give you some idea as to the state of the cured material.

For example, a typical cured epoxy fairing compound would have a Shore D Durometer reading of 55 – 60 when fully cured.

By using such machines, correctly mixed or poorly cured product can be identified, allowing removal and re-filling before painting commences rather than discovering problems after painting has been completed.

ADHESION

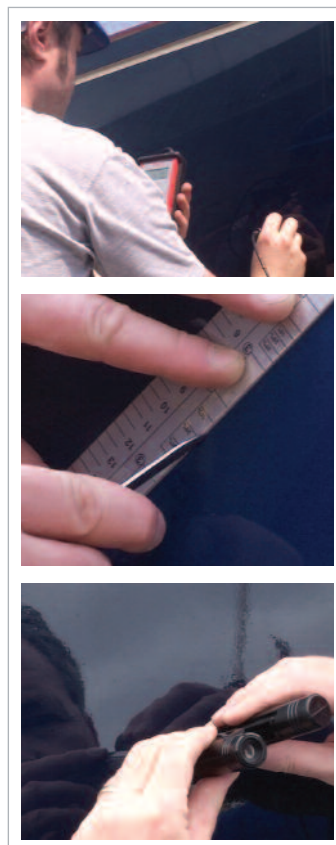
Adhesion can be simply checked by using a sharp Stanley Knife and a ruler to produce the required grid pattern of cross cuts. Tools are available that will produce the multiple cuts in one go, thereby saving time and producing far more repeatable results.

These adhesion tests are required before applying new paint systems over old paint systems to ensure the old system has an adequate level of adhesion.

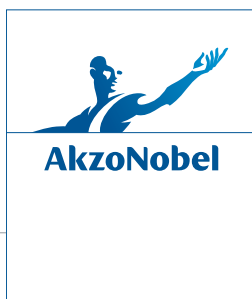
VISUAL AIDS

A simple hand held 10X magnification power unit is an essential piece of equipment for viewing any number of problems. They are very useful for checking surfaces prior to painting to ensure they are well prepared.

Contact your local Awlgrip representative or awlgrip.com for more details on the subjects covered in these Guidance Notes.



Awlgrip®, Awls®, the AkzoNobel logo and all products mentioned in this sheet are trademarks of, or licensed to, Akzo Nobel. © Akzo Nobel 2009.



NORTH AMERICA 1 East Water Street Waukegan Illinois 60085 TEL: 847.599.6212 FAX: 847.599.6209

EUROPE Bannerlaan 54 2280 Grobbendonk Belgium TEL: 32.14.25.7770 FAX: 32.14.23.0880

AUSTRALIA Unit E54 Gold Coast City Marina 76 Waterway Drive Coomera Queensland 4209 Australia
TEL: 61.7.5573.9655 or 1800.007.866 FAX: 61.7.5573.9677

NEW ZEALAND 686 Rosebank Road Avondale Auckland New Zealand TEL: 64.9.828.3009 or 0800.150.527 FAX: 64.9.828.1129

ASIA No.1 Tuas Avenue 4 Singapore 639382 TEL: 65.6862.2928 FAX: 65.6862.0778