IPMS (UK) SAFETY ADVICE FOR MODELLERS (2024)

The following advice has been obtained from a number of sources. It is not intended to preach to you about Health and Safety (H&S), but merely to make you aware of the potential hazards that could arise whilst enjoying your hobby. Remember that the overriding principle of H&S is that everyone is responsible for their own personal protection from hazardous situations. If you tend to do your modelling in close proximity to children and pets, please be aware that those hazards will affect them too. As vapours and dust are heavier than air, they will naturally find the lowest point of your modelling space.

Current legislation requires that symbols be prominently displayed on harmful substances to easily identify them as such. For instance, they appear on the latest Humbrol paint pots. The ones below have been taken from the HSE website. There are others for explosive and oxidising substances, but hopefully you won't find those on any modelling materials. If you're unsure of what hazards are associated with something that you're using, then you will be able to find a Safety Data Sheet online – either on the manufacturer's website or as a standalone document.

It is said that knowledge is power, so I'll finish this preamble with one thought – if the car mechanics of yesteryear (and their partners who washed their overalls), and some of us in our youth, had known that brake shoes and the like contained asbestos, then perhaps we might have worn gloves and a dust mask to protect ourselves from lung related cancers!

Hazardous substance symbols

 **Health hazard**	 **Harmful or irritant** (being replaced by the exclamation mark)	 **Flammable (Inflammable/Combustible)**	 **Acute toxicity**
 **Corrosive**	 **Serious health hazard**	 **Harmful to the environment**	 **Gas under pressure**

Protect yourself

The human body is generally unforgiving of anything that causes it problems. This could be by breathing in contaminated air, getting particles or liquids in the eyes or by letting the skin come into contact with irritants. It is, therefore, a good idea to use appropriate Personal Protection Equipment (PPE) to reduce the risk of health issues whenever you're likely to encounter any of the

aforementioned hazards. PPE that satisfies certain basic, minimum safety requirements is marked 'CE' (Conformité Européenne and should not be confused with the China Export mark that looks very, very similar). If more than one item of PPE is worn at the same time, make sure that they can be used together, such as the wearing of safety glasses that could cause air leaks by disturbing a face mask seal. If for any reason that you feel unwell whilst modelling, remove yourself from your work space and retreat to an area of fresh air until you feel better. If your symptoms persist, seek professional medical attention via NHS 111, your local GP's surgery, Urgent Treatment Centre or A&E.

There are various ways of protecting yourself whilst modelling. The following are recommended:

- Face masks or Respiratory Protective Equipment (RPE). Every precaution should be made to avoid breathing in airborne particles. It's recommended that a protective dust mask is worn whenever sanding or cutting plastic, and especially when working on resin parts, as the fine dust produced when doing so is harmful to the lungs. This is especially important when working with an electric tool. A dust mask only removes particles so it will not give adequate protection against paint spray (even if the paint is non-toxic), or the fumes and vapours from aerosols, solvents, chemicals and adhesives. In those instances, a more sophisticated mask should be worn along with good ventilation of your work area.
- Skin protection. Many modelling consumables can irritate the skin, if not immediately, then over a period of time. To prevent this, minimise exposure and consider using latex or cotton gloves (these are also a good idea when handling models during the painting process to avoid greasy fingerprints).
- Eye protection. You only get the one set of eyes, so it's therefore only prudent to protect them from any risk of damage or injury. If you're cutting tubing or photo etch, either wear safety goggles or wrap the item in a cloth as you cut it. It's surprising how far something will 'ping' as it separates into two pieces. Resin dust will also irritate the eyes as will solvent vapours.

General Safety

- Think of the environment and don't empty your waste fluids down a domestic drain. You should also prevent any product entering the soil or water courses as they will eventually find their way back into the food chain or domestic water supply.
- Fire and Explosion. Since many modelling substances are either flammable, or give off flammable fumes, it is common sense not to smoke when modelling. Care should be taken to remove any flammable substances and ventilate the work area to remove any fumes/vapours before starting any modelling technique that needs the use of heat or naked flames. As previously stated, heavier than air fumes/vapours will pool at the lowest point that they can. If using a solvent on your workbench then be mindful of any ignition source at floor level, such as heaters and electric fires. Additionally, the following should be considered:
    - Excessive amounts of dust will create an explosive atmosphere.
    - Air compressor storage tanks may eventually experience explosive decompression due to internal corrosion and metal fatigue.
- Solvents and Paints. All solvents are highly flammable.
    - MEK/MEKO. Methyl Ethyl Ketone and Methyl Ethyl Ketoxime are both clear, colourless, volatile liquids with a sweet odour. Both are highly flammable/inflammable/combustible and their vapour may be prone to distant ignition and flashbacks. They may cause drowsiness/dizziness and moderate to severe eye irritation. On the 1st March, 2022, all products containing the chemical MEKO, which is used as an anti-skinning agent in enamel paints, were reclassified. Therefore, in future all enamel paints sold in the UK will be MEKO free so that retailers can legally export them to the EU.

    - Ventilation is very important when using paints and the ideal system is a mini spray booth with an extractor and filter. If you do not have access to a spray booth then you should wear a mask specifically rated for spray painting and not an ordinary dust mask, as it will not filter out the airborne fine particles.
    - It should be noted that some old enamel paints may contain lead chromate.
    - If for some reason you find a use for carbon tetrachloride, then you need to be aware that it decomposes under heat to form phosgene - a **poison gas** used in WW1.
- Adhesives/Glues. The most common modelling adhesive/glue is one that uses a solvent to partially liquefy plastic along a joint. Allowing the joint to solidify causes a permanent chemical weld. Again, most of these solvents are toxic and flammable, so they should only be used in a well ventilated area.
    - Super Glue (Cyano Acrylate or CA) is an acrylic resin compound that reacts with water to create a strong adhesive bond which is extremely difficult to break. Cyanoacrylate fumes are also irritating to your respiratory system. Should you accidently bond your fingers together, soak them in warm, soapy water and allow the water to penetrate the bond. **NEVER PULL OR TEAR** bonded skin apart. Alternatively, nail polish remover (acetone) will act as a debonding agent, though itself is also an irritant. Should you get glue near your eyes seek medical assistance. Cyanoacrylates give off heat on solidification and in rare cases skin contact with a large drop may generate enough heat to cause a burn. Burns should be immediately treated by flushing the affected skin with running cold water.
    - Epoxy Resin is an irritant, so, when handling it, it's advisable to wear gloves and your work area well ventilated. The resin is not water soluble and can only be removed from the skin with a suitable skin cleanser.
    - PVA adhesive has no specific safety problems, though it's recommended that skin and eye contact be avoided.
- White metal & Pewter: White metal is an alloy of tin, antimony, copper, cadmium and small amounts of other elements. Pewter is a similar high grade alloy that is considered to be a metal in its own right. Wearing a dust mask is recommended when working with either metal as the particles generated whilst doing so may cause respiratory irritation and diseases.

- Tools. Most modelling mishaps will come from using various tools. To reduce the risk of injury, consider the following:
    - Only use light pressure when using a knife and cut away from your body. Where this is not practical hold the knife and the part being working on in a firm controlled grip so that it cannot slip. Always use a sharp blade as a blunt blade increases the risk of a mishap. Always dispose of your used blades safely, preferably sealing it in scrap cardboard.
    - Always work in a good light.
    - Make sure that electrically operated tools and their cables are in good condition before use and unplug them when not in use.
    - Be aware of where you're drilling and where the drill bit will exit the work piece.

IF YOU'VE MANAGED TO GET TO HERE, THEN CONGRATULATIONS. PERSONAL HEALTH ISN'T UPPERMOST IN EVERYONE'S MIND, BUT MOST OF ALL, PLEASE BE SAFE AND ENJOY YOUR HOBBY. LIVE LONG & PROSPER!

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