

PREPARING A BOAT FOR BODY WORK OR REPAINTING



Preparing boats for body work or repainting involves many hazards to the eyes, skin, hearing, lungs, etc. Working with fiberglass has many potential inhalable hazards such as solvents, Isocyanates (from hardener), fiberglass dust, resins, fumes, and vapours.

Hazard: Compressed Air

Details

- Powers various equipment
- A blast of air at 40 psi can cause blindness and deafness or both

Threat

- Eye irritation or injury
- Painful or fatal injuries if it penetrates the skin

Safe Work Guidelines

- Change the compressor oil every 2 to 3 months
- Have an adequate supply of oil in the machine and in stock

- Inspect compressed air hoses regularly and replace any that are cracked, worn, or frayed
- Wear safety glasses or a face shield
- Use the recommended air pressure for the job as outlined in the supplier's technical bulletins
- **Do not** point the nozzle at yourself or anyone else
- **Do not** use compressed air to clean dust off clothing or skin
- Use proper measures – not your hands – to seal leaks in the air lines or at joints
- Let the ventilation system or dust extractor run for several minutes
- Turn off the air supply with finished

Hazard: Compressed Gases

Details

- Found in oxygen and acetylene cylinders and mixed gases

Threat

- Leaks, fire, and explosion

Safe Work Guidelines

- Store cylinders upright, separately from each other and supported tightly by wall chains
- Close cylinder valves tightly after use
- Ensure that the tanks are not top heavy

Hazard: Noise

Details

- Sandblasting usually occurs at 100-105 decibels

Threat

- Hearing damage, deafness

Safe Work Guidelines

- Wear hearing protection and make sure other workers near you are also wearing hearing protection

Hazard: Sand and Grit

Details

- Found in the abrasive material used in sandblasting and expelled at 65-120 psi

Threat

- Eye irritation or injury
- Cuts and bruises to exposed skin

Safe Work Guidelines

- Wear the appropriate personal protective equipment (hard hat, impact-resistant face-piece, safety glasses with side shields, heavy gloves, impervious coveralls)
- Use a commercially available portable dust extractor

Hazard: Sanding Dust

Details

- Exposure can occur while fine-sanding topcoats and primers, many of which contain heavy metals such as lead, chromium IV and cadmium that can become airborne during sanding

Threat

- Difficulty breathing
- Irritation to nose and throat
- Prolonged exposure could cause permanent lung damage

- Exposure to heavy metal can cause nerve damage

Safe Work Guidelines

- Use local exhaust; consult an occupational hygienist or a ventilation engineer to make sure that you have the proper exhaust system
- Wear a dust mask
- Use sanders (rotary, orbital or straight-line) equipped with local exhaust ventilation as part of the tool's design

Hazard: Silica

Details

- Found in the sand used for sandblasting old paint off metal vehicle parts. Inhaling silica releases enzymes that destroy lung tissue and eventually cause emphysema (difficulty with breathing)

Threat

- Lung damage
- Emphysema

Safe Work Guidelines

- Consult the joint health and safety committee's silica assessment for information about exposure in your workplace
- Consider using a silica-free abrasive
- Ask your safety supply company for the proper equipment and training in its use
- Blast only in a well-ventilated area that has local exhaust
- If you do your sandblasting in one area, use an air line respirator (supplied with bottled air or an air source well away from where you work)
- If you move around your site in a truck to do your sandblasting, wear a NIOSH-certified dust mask or cartridge-type respirator

- Use a vacuum with a special high-efficiency filter or wet the dust thoroughly and then scrape it up; don't use brushes to sweep it up

Hazard: Fiberglass Dust

Details

- Exposure can occur while grinding and sanding fiberglass, which is an irritant

Threat

- Difficulty breathing
- Eye irritation or injury
- Irritation to your nose and throat

Safe Work Guidelines

- Make sure that the area you are working in is well ventilated with a mechanical ventilation system delivering a continuous movement of air; if necessary, consult an occupational hygienist or a heating, ventilation and air conditioning (HVAC) technician to make sure you have the proper exhaust system
- Wear approved safety glasses, gloves, coveralls with a head covering, and a NIOSH-approved air-purifying respirator
- Use a sander with a vacuum hose or bag attached
- Be aware of hazards generated by anyone else who is working near where you are grinding

Hazard: Vapours

Details

- Given off by resins and solvents

Threat

- Irritation to eyes, nose, and throat
- Central nervous system damage

- Long-term damage to the respiratory system (nose, mouth, throat, lungs)
- Severe dermatitis
- Loss of consciousness

Safe Work Guidelines

- Wear a NIOSH-approved air-purifying respirator and goggles
- Work in a properly ventilated area, preferable a paint booth with a mechanical ventilation system delivering a continuous movement of air
- If possible, use a proper solvent cleaning station with local exhaust when cleaning a spray gun with solvent
- Used proper solvent-recovery equipment and filter according to the MOL's Engineering Data Sheet 4-16 Solvent Recovery Equipment
- Store flammable liquids in properly sealed containers kept in appropriate locations

See Regulation 851: Regulation for Industrial Establishments, s.22-23

Hazard: Paint Particles

Details

- Given off by gel coat/tint and the polyester topcoat

Threat

- Irritation to the eyes, nose, and throat

Safe Work Guidelines

- Wear a NIOSH-approved air-purifying respirator with goggles or a full face-piece mask, Tyvex coveralls (for exposure to Isocyanates), and chemical-resistant gloves

Hazard: Resins

Details

- Can cause chemical burns
- Are usually toxic to the environment

Threat

- Severe chemical burns to your skin
- Environmental damage

Safe Work Guidelines

- Wear chemical-resistant gloves, coveralls, and chemical goggles – see the MSDS
- Let the resin harden in a waste container and dispose of it according to local regulations; do not dump chemicals down the drain unless they are certified biodegradable

Hazard: Solvents

Details

- Can cause a static charge build-up when being used to wash an area of the boat before painting
- Rags soaked in solvent are high flammable – store in a proper flammable container after use

Threat

- Explosion
- Spontaneous combustion

Safe Work Guidelines

- Apply barrier creams against dermatitis
- When washing down an area of the boat with solvent before painting, make sure the area is well-ventilated so that the solvent vapours are kept below the explosion limit; this will minimize the risk of a static discharge igniting solvent vapours when wiping the boat
- Use proper bonding and grounding procedures when dispensing and using solvents

- Dispose of solvent-soaked rags in a metal container with a metal lid in case spontaneous combustion occurs

Hazard: Sharp Edges

Details

- Created while removing and replacing damaged boat parts

Threat

- Cuts and bruises

Safe Work Guidelines

- Take the time to use the right tools for the job at hand
- Wear leather gloves

Hazard: Vibration

Details

- Occurs while sanding, grinding, and hammering, and is transferred from the tool to the soft tissue of your hands

Threat

- Circulatory and vascular disorders (e.g., Raynaud's disease – tingling and numbness in the fingers when exposed to cold)

Safe Work Guidelines

- Use anti-vibration gloves with rubber pads on the fingers and palms (e.g., Sorbothane) or tool wraps
- Avoid tools that vibrate at low frequency (20-130 Hz); if possible, purchase tools that have internal damping
- Take regular breaks (every 10 - 15 minutes) and shake out your hands or change tasks for 5 minutes

Hazard: Welding Flame

Details

- Created by a welding torch while removing damaged metal vehicle parts or attaching replacement metal parts

Threat

- Fire, burns
- Eye damage through radiation

Safe Work Guidelines

- Remove all flammable liquids from the area
- Keep a fire extinguisher close by in case sparks ignite combustible material in the vehicle
- Use a welding hood with the correct protective filter, welding gloves, coveralls and heat-resistant safety shoes

Hazard: Welding Fumes

Details

- Created by a welding torch and can contain poisonous heavy metals

Threat

- Lung damage through inhalation
- Nervous system damage due to exposure to hot metal fumes

Safe Work Guidelines

- Use a welding helmet, portable fume extractor and portable welding screen

- Wear a NIOSH-approved air-purifying respirator or a NIOSH-approved dust mask for fumes; refer to the MSDS

Hazard: Working in a Fixed or Awkward Position

Details

- Muscles tire quickly when you stay in a fixed or awkward position which causes them to be at a higher risk for injury

Threat

- Muscle strain and associated tendon, nerve, disc or joint pain (common areas include low back, shoulder, elbow and wrist)

Safe Work Guidelines

- Keep parts, tools and supplies as close to you as possible
- Use height-adjustable controls on hoists and platforms to place vehicles and parts in the ideal work zone (e.g., if you're standing, between your shoulder and knuckle height)
- If possible, use two hands to support hand tools
- If you are standing in one place or in a confined space, use a foot rest, ideally at 6 to 10 inches off the ground (e.g., foot stool or tool box)
- Take frequent, short breaks:
 - Short jobs: 15 second break for every 1-2 min. of work
 - Long jobs: 5 min. break for every 15-20 min. of work
- Change to a task that involves moving around or uses a different body part to improve your blood flow

© Workplace Safety & Prevention Services 2011. Workplace Safety & Prevention Services (WSPS) grants permission to approved end users to reproduce this document in whole or in part, provided its intended use is for non-commercial, educational purposes and that full acknowledgement is given to the WSPS. Approved end users are firms registered with the Workplace Safety and Insurance Board. WSPS reserves the right to extend this permission to other stakeholders and interested parties by express written permission upon application. WSPS extends no warranty to materials amended or altered by the end user. Under no circumstances is this document, or any portion thereof, to be duplicated for purposes of sale or for external reproduction or distribution.

Revised: November 2011