



Hull Maintenance: Painting

Painting is a common maintenance operation at MVSR facilities. Painting-related activities that generate hazardous wastes include: 1) surface preparation, 2) painting; and 3) equipment cleaning.

Any paint job is only as good as the preparation that precedes it, and the skill of the people doing the work. Surface preparation techniques used at MVSR facilities include: ⁱ [scraping](#), ⁱⁱ [sanding](#) and ⁱⁱⁱ [blasting](#). Each of these surface preparation methods are addressed in separate fact sheets that can be found on our website at: www.dtsc.ca.gov.



Painting: Both interiors and exteriors of vessels are painted to improve appearance, and to provide corrosion protection. Paint can be sprayed, rolled or brushed onto vessel surfaces. Most top side and interior paints are not as toxic as antifouling bottom paints. The bottom paints, also known as hull paints; generally contain heavy metals such as copper and zinc. On rare occasions, tributyl tin from historic coatings may still remain on hull surfaces.

Spray Painting: Spray painting is used to achieve high-quality finishes on hulls, as well as topsides. This is a painting technique that involves use of a

spray gun to propel paint onto a surface. This technique is heavily regulated for air quality, as the process of spraying solvent based paint creates more airborne pollutants such as volatile organic compounds (VOCs) than simple evaporation from other application methods.

Equipment Cleaning: Paint spray guns, brushes and equipment must be cleaned after use to make them reusable. Paint spray guns and brushes used for solvent-based coatings are cleaned with suitable cleaning solvents. These spent solvents require management as ^{iv} [hazardous waste](#).



*vessel refers to a small craft

Environmental Concerns:

Major sources of paint-related pollutants include a variety of coatings such as antifoulant paints containing biocides, topside paints, lacquers, wood stains, solvents and thinners. These hazardous wastes require proper handling and management.

Targeted Pollutants:

- Degreasers
- Paint
- Paint thinners
- Resins and gel coats
- Solvents
- VOC emissions

Regulatory Requirements:

1. California Air Resources Board ^v (www.arb.ca.gov):

- Air Resources Board's ^{vi} ([Coatings Program](#))
- Local Air Quality Management District's (AQMDs) in California have delegated authority for Title V permitting. **Please contact your local air district:** ^{vii} (California Air Districts)

2. State Water Quality Control Board ^{viii} (www.swrcb.ca.gov)

- National Pollutant Discharge Elimination System ^{ix} ([NPDES Permit](#))

3. California Division of Occupational Safety and Health ^x ([CAL/OSHA](#))

- Personal Protective Equipment ^{xi} ([PPE](#))

4. CUPAs

- ^{xii} ([Please contact your local Fire Department](#))



Recommended Practices (RPs) for Painting

1. **Designated Area:** Use a clearly marked area for painting activities that is far from open water and out of drainage pathways;

- Preferably located in a building with proper ventilation and air filters
- Ground surface must be impervious such as sealed asphalt or concrete (not over open ground or gravel)
- If concrete or asphalt pad is not available, a heavy plastic tarp can be used
- Area must be bermed to contain any spills and prevent pollutants from washing away
- Work area must be segregated using partitions and/or fences
- Access to work area must be restricted to trained employees
- Any waste water generated from painting activities should be channeled to:
 - a. Onsite pre-treatment system for discharge to a local waste water treatment facility^{xiii} ([Stormwater and Wastewater Management](#)) or
 - b. Approved catchment system for collection and proper off-site treatment
- Cover drains, trenches, and drainage channels to prevent debris or any liquid waste from entering them


2. **Spray Painting:** Spray painting should be conducted away from open water and inside designated structures with proper ventilation and air filter systems;



- If a structure is not practical, hang plastic barriers or tarpaulins to enclose, and contain fugitive paint when spray painting
- Use efficient spray equipment such as high volume low pressure^{xiv} ([HVL](#)P) spray equipment
- Instead of spray painting, use brushes and rollers since they are more environmentally friendly
- Maintain records of annual usage of paints and other coatings
- Buy and use low-volatile organic compound (low-VOC) paints or water-based paints
- Minimize waste by working with small quantities of paints and other coatings

3. **Storage and Containment Area:** This area should be designed and equipped to contain any spills and to prevent pollutants from entering a storm drain or nearby surface waters;

- Berms or curbs made of concrete (preferred) or asphalt should be used to enclose the area and prevent runoff from entering or leaving the area
- All containers must be kept closed to prevent evaporation and potential spills
- Store paints, other coatings, solvents and thinners under cover rain to prevent contact with stormwater
- Store paint and paint thinner wastes separately from other wastes

- Drip pans, drop cloths, or ground tarps, should be used when mixing paint, painting and cleaning tools
 - Immediately wipe up any spills with rags and other absorbent materials
 - When used to wipe up hazardous materials (such as paints, strippers, solvents or oils) used rags must be properly managed as hazardous waste OR
 - Employ an industrial launderer that properly manages or recycles used rags that absorbed hazardous materials such as paints, strippers, solvents or oils
 - Do NOT hose down the area
 - Spills in waterways should be contained with booms and mopped up with oil-absorbents
 - **It is unlawful to use oil dispersants to manage oil spills in waterways**
 - Refer to the Spill Prevention Control and Countermeasures Plan ^{xv}([SPCC Plan](#))
4. **Cleanup:** Cleanup must be scheduled at the end of the shift and/or when the project is complete. This avoids contamination of other areas of the facility and the surrounding environment.
- Clean brushes and tools covered with solvent-based paints, and other coatings in a manner that allows collection of used solvents (e.g., paint thinner) for recycling or proper disposal
 - Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers for disposal to a sanitary sewer drain if allowed by the local publicly owned treatment works ^{xvi}([POTW](#)) and ^{xiii}([Stormwater and Wastewater Management](#))
 - Do not air dry left-over solvent-based paints in the open
 - Paint cans should be drained of remaining paint and then left to air dry within a contained area
 - Drained and dried paint cans can be recycled if they do not contain leachable hazardous constituents (see 22 ccr 66262.34 [a] [1])
 - Work area must be equipped with clearly marked receptacles for waste paint collection
 - Dispose of all paint cans, paint containers, brushes, sleeves, roller pans, rags, and all other used materials in proper waste receptacles
 - The collected waste must be tested to determine if it is a hazardous waste. If test is positive, then the collected waste must be disposed of as ^{iv} [hazardous waste](#) by using a licensed hauler
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5. **Recovery and Recycling of Solvents and Thinners:** The following practices are highly recommended to reduce environmental impacts;
- Avoid use and purchase of any chlorinated solvents such as methylene chloride, perchloroethylene (PERC), trichloroethylene (TCE), benzene, xylene, or toluene.
 - Replace solvent-based paints with water-based paints to eliminate the need for solvents and thinners
 - Reuse solvents and thinners by draining the clean product off the top after solids settle out
6. **Good Housekeeping:** Good housekeeping and management practices require implementation to promote pollution prevention during painting activities;

- Prohibit spray painting activities during windy conditions
- To avoid any inadvertent exposure, restrict vehicular traffic and customers from entering work areas
- Schedule routine site inspections to ensure RPs are implemented
- All RPs must be reviewed periodically and revised as necessary
- To reduce over spray and unnecessary waste, train employees in the careful application of paints, finishes, and coatings
- Permit only trained employees to paint
- Emphasize safety concerns and RPs for on the job training of operational procedures
- Updated training should be done on a regular basis
- Provide and encourage use of personal protective equipment (PPE) such as Tyvek suits, masks, gloves, etc.
- Provide educational materials and signage in English and Spanish, and/or other foreign languages commonly used in your area



References and Other Resources:

- i. <http://www.dtsc.ca.gov>
- ii. <http://www.dtsc.ca.gov>
- iii. <http://www.dtsc.ca.gov>
- iv. http://www.dtsc.ca.gov/HazardousWaste/upload/HWMP_DefiningHW11.pdf
- v. www.arb.ca.gov
- vi. <http://www.arb.ca.gov/coatings/coatingsrules.htm>
- vii. <http://www.arb.ca.gov/capcoalroster.htm>
- viii. www.swrcb.ca.gov/
- ix. http://www.swrcb.ca.gov/water_issues/programs/npdes/
- x. <http://www.dir.ca.gov/dosh/puborder.asp>
- xi. http://www.osha.gov/pls/oshaweb/owadispl.show_document?p_table=STANDARDS&p_id=9777
- xii. http://www.dtsc.ca.gov/InformationResources/local_contacts.cfm
- xiii. <http://www.dtsc.ca.gov>
- xiv. <http://www.dtsc.ca.gov/>
- xv. [http://csti.ca.gov/WebPage/oeswebsite.nsf/ClientOESFileLibrary/Hazardous%20Materials/\\$file/Spill%20Notification%20Booklet%20Aug-2010.pdf](http://csti.ca.gov/WebPage/oeswebsite.nsf/ClientOESFileLibrary/Hazardous%20Materials/$file/Spill%20Notification%20Booklet%20Aug-2010.pdf)
- xvi. http://www.swrcb.ca.gov/water_issues/programs/npdes/pretreat.shtml

For additional information on auto body and paint shop pollution prevention practices and a list of available publications contact:

Department of Toxic Substances Control (DTSC)
Office of Pollution Prevention and Green Technology
P.O. Box 806
Sacramento, CA 95812-0806
<http://www.dtsc.ca.gov/PollutionPrevention/index.cfm>
(916) 322-3670
(800) 700-5854

Environmental Boating Program Coordinator
California Department of Boating & Waterways
California Coastal Commission
45 Fremont Street, Suite 1900
San Francisco, CA 94105
www.BoatingCleanandGreen.com
(415) 904-6905



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