Painting Operations

Hazard Review

- **Absorption (chemical)**
- **Awkward postures**
- **Electrical**
- **Fire/explosion**
- **Forceful exertions**
- **Ingestion (chemical)**
- **Inhalation (chemical)**
- **Injection (chemical)**
- **Skin contact (chemical)**
- **Slips/falls**

Related Safe Work Practices

- **Hazardous Substances**
- **Lifting, Body Mechanics and Ergonomics**
- **Personal Protective Equipment**
- **Traffic Safety**

Personal Protective Equipment

- **Boots**
- **Hearing protection**
- **Gloves**
- **Protective Eyewear**
- **Reflective Vest**
- **Respiratory Protection**

Authority

- CCR Title 8 Section 5144, 5153, 5460
- San Francisco Fire Code 45
- BAAQMD Regulation 2-1-119.2.1

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This safe work practice addresses the hazards of painting operations and is split into the following sections:

A. General
B. Specific Tasks
    - Airless Paint Spray Operations
    - Paint Shaker Machine
    - Paint Spray Booth Operations

Painting Operations

This SWP is dedicated to helping you avoid an injury or illness from known hazards. We advise you to follow these recommendations.

Large amounts of solvents are used in the painting industry and many of these products contain more than one chemical. Although recent reformulations have decreased the hazard, paint solvents are particularly hazardous to the lungs, with inhalation the primary means of painter exposure.

The known hazard and potential injury or illness related to painting operations based on RPD injury and illness data include:

Known Hazard	**Potential Injury, Illness**
Chemical Hazards	
Inhalation (chemical)	Inflammation of the lungs, respiratory failure, death
Skin contact (chemical)	Burns, allergic reaction, dermatitis
Absorption (chemical)	Irritation, overexposure
Injection (chemical)	Overexposure
Ingestion (chemical)	Overexposure
Physical Hazards	
Fire/explosion	Burns, death
Slips/falls	Bruise, contusion, sprain, strain, fracture from fall and impact
Electrical	Shock, burn, cardiac arrest, death
Ergonomic Hazards	
Awkward postures	Stress on joints and spine, cumulative trauma disorder
Forceful exertions	Back strain, cumulative trauma disorder, physical stress

All tasks require that you:

- Use the equipment in accordance with the guidelines set forth by the manufacturer. This includes following all signs and labels, and reviewing any manufacturer's operating manuals.
  - If the instructions provided in the operating manual conflict with this SWP, then follow the instructions in the manual. The manufacturer's instructions prevail over this SWP.
- Review the safety data sheets (SDSs) for any chemical used.
- Train on this SWP and those listed above as related. Training on SWPs must be completed before initial assignment. It is also recommended that you complete refresher training every two years.

A. GENERAL

Before

1. Complete required training. This includes:
   - A review of the manufacturer's operating manual for any equipment used.
   - Training on this SWP and those listed as related. These must be completed before the initial assignment and every 2 years thereafter.

2. Review and verify that operating permits are current and posted. See the Hazardous Substances SWP for information on permitting requirements and processes.

3. As the operator, you should inspect any equipment used each work shift prior to use.

During

4. Use proper procedures when lifting or moving any supplies or equipment. Consult the "Lifting, Body Mechanics, and Ergonomics" SWP for more information.

After

5. Immediately report any problem or deficiencies you notice during your shift. Do not wait until the end of your shift to address a serious safety issue. If the problem is serious, make it your responsibility to have the equipment removed from service.

6. Any clothing that becomes contaminated should be removed and discarded or properly cleaned before re-use.

7. Areas of the body that come in contact with solvents should be thoroughly washed with soap and water to prevent skin absorption or dermatitis.

8. Clean up any spilled or splattered materials immediately.

9. Leave immediate area clean and clear for next user.

B. SPECIFIC TASKS

Airless Paint Spray Operations

Before

10. Check all hoses for leaks; repair or replace as needed prior to using.

During

11. Never leave pressure in system when not in use.

12. Always set trigger lock on spray gun to the locked position when not in use.

13. Never point spray gun at anyone or yourself.

14. Tie down any airless spray machine paint plow in back of truck prior to moving the truck.

After

15. Clean out pump and lines with water, check for leaks.

16. Relieve pressure slowly.

Paint Shaker Machine

Before

17. Clear immediate area of any objects that may obstruct movement of shaker.

18. Clear floor in immediate area and path to shaker to prevent slips, trips, and falls.

19. Check that top to container to be shaken is tight and will not loosen and release a spill while shaking.

During

20. Open container holder wide enough to accommodate container.

21. Using proper lifting technique, place container on shaker and tighten container into position.

22. Standing clear of shaker, turn on and set timer.

23. When shaker has stopped, follow reverse procedure to remove container.

Paint Spray Booth Operations

Before

24. Ensure that the booth has current permits from the agencies listed below. Keep the originals on file and post copies near the entrance:
    - Bay Area Air Quality Management District (BAAQMD)
    - San Francisco Fire Department
    - Hazardous Materials Unified Program Agency (HMUPA)

25. The San Francisco Fire Code 45 requires fire sprinklers in spray booths and a method of removing contaminants from the exhaust air.
    - Fire sprinklers should be installed in and behind the booth.
    - The booth must have an H4 Occupancy rating (any structure for the storage, use or handling of hazardous materials which is classified as an H [high hazard] occupancy, and is under 3,000 square feet.).
    - Ventilation shall be in operation during spraying operations and until the articles are dry.
    - Spraying equipment must be interlocked with the ventilation such that spraying operations cannot be conducted unless the ventilation system is in operation.

26. Ensure that visible gauges or alarms showing that the required exhaust air velocity is being maintained have been installed, and continue to work during operation.

27. Electrical wiring and equipment in spray booths, including ventilation equipment, should be fully enclosed and explosion proof. This means that portable electric lighting fixtures, frequently used in booths, should not be used.

28. All metal parts of spray booths should be grounded to prevent static charges from building up.

29. Flammable or combustible materials should be stored in UL approved safety cans, and stored outside the booth, other than what will be used in one day.

30. Confine, spray coating operations to properly designed, constructed, and adequately ventilated spray booths or spray rooms.
    - Spray booths must comply with the Cal-OSHA ventilation standard; the manufacturer should be able to provide you with certification that it does. If not, contact EHS for further information.

31. Don personal protective equipment.
    - The spray booth operator shall wear a respirator when he or she is positioned downstream from the object being sprayed. Employees wearing

respirators must be part of the Respiratory Protection Program as described in the Personal Protective Equipment SWP.

- Prevent direct skin contact with hazardous materials through the proper use of gloves, aprons, boots, face shields, or entire body work suits, depending upon the nature and extent of the chemical hazard.

During

32. Be cautious about changing the type of material being sprayed. Some inorganic and organic materials are not compatible and can cause spontaneous combustion.

33. To prevent spontaneous ignition, rags and waste material that are contaminated with over-spray should be stored in self-closing metal containers.

For any questions, please contact EHS at 415-831-2780.

References:

1. SeaBright Insurance Loss Control “Painting Hazards, and the New Respiratory Protection Standard” Seattle, WA, SSU 1998-03.
2. Specialty Technical Publishers, California Training Requirements Compliance Guide, “Respiratory Protection for Spray Coating Operation” Section L-29, 8 CCR 5153.
3. Occupational Safety & Health Administration, (OSHA) “Spray finishing using flammable and combustible materials.” - Regulations (Standards - 29 CFR); 1910.107 Washington, DC. March, 1996