Minimizing Paint Waste
Environmental & Health Concerns

- Hazardous waste
  - Mixed coatings and solvent
- Air emissions
  - Toxic constituents
    - Toluene, xylene, MEK
  - Smog forming VOCs
Paint Waste Sources

- Mixing room
  - Overestimate
  - Overmix
- Overspray
  - Technique
  - Equipment
- Re-work jobs
  - Color not matched
  - Dust and dirt
  - Finish quality
Manage Inventory

- Just-in-time ordering
- First-in, first-out
- Keep containers closed
- Mixing banks
Color Matching

- Mix in small amounts
  - Start with 8 oz. or less
- Spray out on test panels
  - View and compare in natural light
- Colorimeter or spectrophotometer
- Expertise of other painters
- Color library of spray-outs
  - Record color mix information
Paint Measurement

- Computerized mixing system
  - Tracks product use and VOCs
  - Reports for air district
- Automated paint dispenser
  - Minimizes over-pours
- Minimize paint transfers
Track and Troubleshoot

- Record each step
  - Estimated amount
  - Actual amount mixed
  - Left over
- Compare estimated and actual paint used to refine estimating
- Compare paint orders with workload
- Work with painter to resolve
Paint left over

- Mix into ground coat
- Cover hard to hide colors
- Under dark color coat
- **Will it change regulated VOC content?**
  - Check with air district
- Door interiors, edging, jambing
- Save popular colors for later use
Calibrated Liners
Advantages

- Mix in cup liner
- Mix more than one batch at a time
- Increases application efficiency and reduces paint overspray
- Cover and save mixed paint for a limited time
- Reduces cleaning solvent and waste
  - Do not need to clean paint pot
  - Reduces labor
- Increased production
Job Planning

- Primer and clear coat back-to-back
- Tintable primer systems
- Schedule waterborne primer application to allow drying time
- Remove part before
  - No masking needed
  - Reduces overspray
  - Streamlines process
Painting

- Poor technique
  - Wastes paint
  - More clean-up
  - Painter labor
- Goal - Improve application efficiency
  - Finish quality
  - Transfer efficiency (TE)
  - Build efficiency (BE)
- Solutions
  - Paint technician training
  - Technology
    - Higher efficiency spray guns
    - Targeting device
Painter Training

Painters learn to apply paint more efficiently

- Hands-on training
- Students practice proper technique
- Techniques for specific coatings

- I-CAR training centers
- Paint manufacturer training
- Community college automotive programs
  - IWRC STAR ® Program, Spray Technique Analysis and Research
    - http://www.iwrc.org/programs/STAR.cfm
  - LA Trade Technical College
- IWRC STAR training for defense
  - http://www.star4d.org
- ARB P2 web page- auto refinishing
  - http://www.arb.ca.gov/coatings/p2/overview.htm
Technology

- **LaserPaint™**
  - Application technique and targeting tool
  - Allows painter to:
    - Maintain correct angle and distance for consistent coverage
    - Optimize overlap
    - Reduce overspray
- Developed by Iowa Waste Reduction Center (IWRC)
- [http://www.laserpaint.us](http://www.laserpaint.us)
Cost: $300 includes mounting bracket and training CD

LaserPaint tool developed by IWRC
http://www.laserpaint.us
Environmental Technology Verification

- LaserPaint
  - ARB certified performance claim
  - 15% volume reduction average

- High TE Spray Equipment
Paint Spray Booths
Functions of Spray Booths

- Facilitates cleaner paint jobs
  - Contains overspray
  - Collects waste
  - Provides clean air during paint operations
  - Provides well lit area, devoid of dust
- Protects worker’s health
  - Confines harmful emissions in one area
    - Prevents workers outside of booth from inhaling solvent emissions and paint particles
    - Workers painting within booth should wear personal protective equipment
- Monetary savings
  - Reduces operation costs
  - Lowers labor costs
  - Reduces material costs
- Filters paint particles from air before exhausting it into the atmosphere
Types of Paint Spray Booths

- Spray booths provide uniform airflow
- Two most common types of spray booths
  - (1) Cross draft spray booth
  - (2) Down draft spray booth
Cross Draft Spray Booth

- Air is drawn in across filters on the front end of the room into filters located on the opposite end of the room.
Down Draft Spray Booths

Air is pulled down through inlet filters on the ceiling into exhaust filters located on the floor.
Combination Drying Booths

- Two distinct operating cycles
  1. Painting
  2. Heated drying cycle

- Decreases curing time
  - High productivity due to fast processing time

- Allows for good finish quality and reduces reworking

- Conserves energy
  - Uses recirculating airflow

- More cost effective over lifespan of equipment
  - Reduces costs
    - Operation and maintenance
    - Labor
Spray Booth Considerations

- **Serviceability**
  - Select from a vendor that offers maintenance, support, and warranty
  - Choose a vendor that is accessible to reduce downtime when replacement parts and/or repairs are needed

- **Lighting**
  - Fluorescent
    - Runs cooler
    - Consumes less energy
  - High-Intensity Discharge (HID)
    - Delivers more lighting per lamp
    - Requires longer warm-up time

- **Filter**
  - Most important component of a spray booth, must be capable of holding and capturing all dirt, overspray, and solvent
  - Prevents paint build-up on fans, exhaust, and release of paint particulates into the environment
Paint Spray Booth Interior – Down Draft Spray Booth

- Ceiling Air Inlet, filters above inlets
- Polyethylene Sheeting/ Masking Cling Film
- Fluorescent Lighting
- Grates
- Filters beneath grates
Maintain Spray Booth and Components

- Produces cleaner paint jobs, reduces waste, and protects worker’s health
- Results in lower labor costs, reduces operation costs, and reduces material costs
- Develop a routine maintenance schedule that includes:
  - Changing filters
  - Masking off booth surface and equipment
  - Checking paint buildup on fans
  - Overall good housekeeping
Maintain Spray Booth

- Maintain Spray Booth
- Manometer: check routinely for optimum air flow
- Keep booth clean
- Remove dust and debris
Paint Waste Reduction

- Waste reduction equates to cost savings for shops
- Employee incentives
  - Ask for their ideas
  - Share cost savings of significant waste reduction with workers