SL Laboratory Safety

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Overview

- Need for lab safety
- Resin issues affecting safe handling
- Lab chemical exposure opportunities
- Shop practices

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Hasbro RP Lab-Speed Kills!

in 1999:

- 12,900+ parts
- 16800+ laser hours
- Turn-time: less than 4 days

Safe Lab Practices are Habit

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Need for SL Lab Safety

- Physical Chemical Hazards
  - Skin
  - Eye
  - Respiratory
- Sharp Instruments

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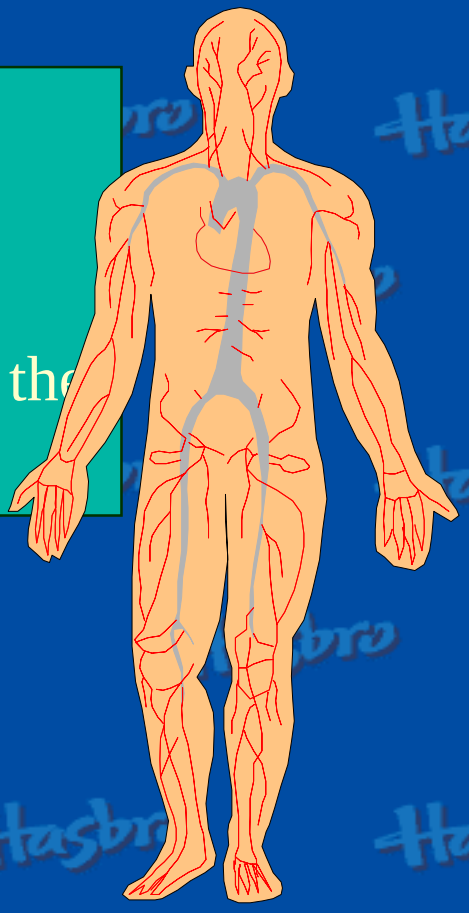
SL Resin Advances

Resin Type	Viscosity	Surface Tension
Acrylate	High	Low
Vinyl Ether	Low	Low
Epoxy	Low	High

Chemical Sensitization

- Exposure to Foreign Material
- Body recognizes material as foreign
- Histamines produced to flush the foreign material



Successful Lab Safety Plan

Recognize need

Commitment to act

Plan of action

Reinforcement/follow-up

Habits develop in 21 days

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Physical Hazards-Resins

- Skin, Eye, Respiratory Risks
  - Filling SLA
  - Removing Platforms
  - QuickCast Pattern Post-Processing
  - Separate “wet” from “dry”

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Physical Hazards-Solvents

- Dermal
  - Solvents accelerate dermal permeation
  - Transport resin
  - Remove natural skin oils
- Respiratory
- Eye Protection
  - avoid contact lens use
  - full face shields recommended

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Skin Protection

- Barrier Creams
- Nitrile Gloves
- Oversleeves, aprons, coveralls
- Face shields
- Glove Boxes

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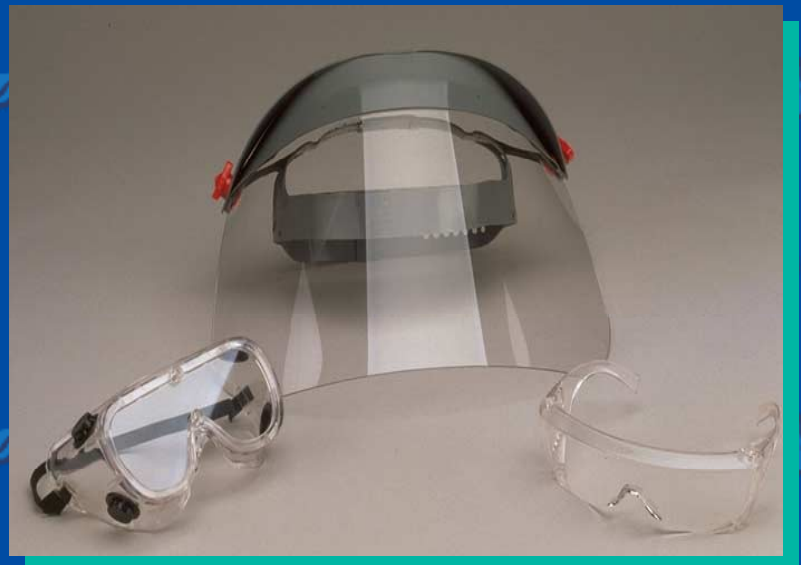
Eye Protection

- Goggles
- Safety Glasses
- Full-Face Shields
- UV-filtering Glasses



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Skin Protection for Sensitized Individuals-Video Tape

Solvent-Resistant Barrier Cream

Nitrile Glove

Oversleeve

Nitrile Glove

Remove soiled gloves by grasping palm (NOT CUFF), rolling them inside-out.

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After the Fact

See a doctor!

- Skin Lotions/ointments
- Prescription Antihistamines

Re-examine shop practices

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Physical Hazards-Sharps

Sharps Include:

- X-acto Blades
- Single-edge razors
- Surgical scalpels

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Physical Hazards-Sharps

Proper technique

- Avoid skin and PPE cuts
- Avoid atomizing resin
- Cleanly remove supports

Sharps Disposal

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Reducing Chemical Exposure

- Facilities/Equipment
- Proper Work Habits
  - Shop Practices
  - Personal Hygiene
  - Area Access

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Shop Practices/Policies

Hygiene Practices

- Training in equipment use
- Wash with COLD water
- Use mild soap followed by skin lotion
- Launder lab coats regularly!

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Shop Practices/Policies

Shop Policies

- Limit lab access to Authorized Personnel
- Wash-down procedures
- NO food or beverages in process areas
- Consult Safety and Industrial Hygiene Experts

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Personal Protective Equipment

- Always inspect PPE for soil/rupture
- Wash equipment thoroughly (if practical) between use
- When in doubt, throw it out!

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Respiratory Protection

- Proper Facility HVAC
  - Ventilation
  - Filtration
- Personal Protection
  - Organic Vapor Respirator
  - Particulate Dust Mask

Physical Hazard-Static Electricity

Bead Blast Cabinets

- Grounding Straps to earth ground
- Operator arm strap to earth ground
- Discharge strip inside cabinet

Summary

What makes lab safety work?

- Awareness
- Desire
- Discipline
- Follow-up

* Your results may vary. Batteries not included. Some assembly required. Adult Supervision recommended. Made from 10% post-consumer paper products. Void where prohibited.

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Conclusion

Don’t be a hero, use PPE.

Sensitized personnel can work safely and comfortably.

Success means Discipline.

Lab Safety Manual, video, and MS PowerPoint Presentation available for copy, free of charge.

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