

# Machine Shop and Makerspace Safety

## Links and Resources

### Incidents and General Safety

EHS Machine Shop Resources

<https://www.ehs.harvard.edu/programs/machine-shop-safety>

EHS Makerspace Resources

<https://www.ehs.harvard.edu/programs/makerspace-safety>

Accident Reporting and Investigation

<https://www.ehs.harvard.edu/programs/accident-reporting-investigation>

Preventing Fire and/or Explosion Injury from Small and Wearable Lithium Battery Powered Devices

<https://www.osha.gov/dts/shib/shib011819.html>

Gif demonstration of battery fire from puncture

<https://i.imgur.com/gRXv3fM.gifv>

Video of battery fire from overcharging

<https://www.powerelectrontips.com/heres-what-happens-when-lithium-ion-batteries-are-drastically-overcharged/>

What If Analysis

<https://www.acs.org/content/acs/en/chemical-safety/hazard-assessment/ways-to-conduct/what-if-analysis.html>

Hierarchy of Controls

<https://www.cdc.gov/niosh/topics/hierarchy/default.html>

NIOSH study on 3D printer emissions

<https://blogs.cdc.gov/niosh-science-blog/2018/08/16/3d-printing/>

2011 Death in a Physics Machine Shop

<https://www.nytimes.com/2011/04/14/nyregion/yale-student-dies-in-machine-shop-accident.html>

OSHA reenactment of worker fatality from grinder wheel exploding

<https://www.youtube.com/watch?v=g3ZwAEPdJVY>

Graphic safety video featuring injuries from grinder and abrasive wheels

<https://www.youtube.com/watch?v=iaoVqUpOrPs>

Penetrating Head Injury From Angle Grinder: A Cautionary Tale (NIH paper with graphic pictures)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3137829/>

Runaway Hotplates

<https://dchas.org/wp-content/uploads/2017/09/RunawayHotPlates-2017Aug.pdf>

EHS Respirator Policy

<https://www.ehs.harvard.edu/node/7909>

## Hazard Communication and GHS

[lab\\_safety@harvard.edu](mailto:lab_safety@harvard.edu)

Designated Lab Safety Officer Assignments

[https://www.ehs.harvard.edu/sites/ehs.harvard.edu/files/ehs\\_designated\\_safety\\_officers\\_em\\_staff\\_lsa\\_assignments.pdf](https://www.ehs.harvard.edu/sites/ehs.harvard.edu/files/ehs_designated_safety_officers_em_staff_lsa_assignments.pdf)

Search the Harvard directory

<https://www.directory.harvard.edu/>

ChemWatch link

<https://www.ehs.harvard.edu/news/material-safety-data-sheets-msds>

GHS Hazard Classes and Label Elements

<https://www.ehs.harvard.edu/node/7890>

A list of all GHS hazard statements

[http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs\\_rev04/English/07e\\_annex3.pdf](http://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev04/English/07e_annex3.pdf)

NFPA Diamond

<https://www.acs.org/content/acs/en/chemical-safety/basics/nfpa-hazard-identification.html>

## Emergency Action and Reporting

Emergency Guidance

<https://www.ehs.harvard.edu/programs/emergency-guidance>

Accident Reporting and Investigation

<https://www.ehs.harvard.edu/programs/accident-reporting-investigation>

Evacuation Trifolds by Building

<https://www.ehs.harvard.edu/evactrifolds>

Emergency Response Guide

<https://www.ehs.harvard.edu/node/8206>

University Health Services Locations and Hours

<https://huhs.harvard.edu/locations-hours>

## Waste Disposal

EHS waste resources

<https://www.ehs.harvard.edu/programs/chemical-waste>

Chemical Waste Pickup Form/Request Supplies and Assistance

<https://www.ehs.harvard.edu/Chemical-Waste-Pickup-Form>

## Waste Disposal, cont.

Chemical Waste Labeling Tool

<https://www.ehs.harvard.edu/chemical-waste-labeling-tool>

Sink disposal at Harvard

<https://www.ehs.harvard.edu/node/8245>

Non-bio sharps

<https://www.ehs.harvard.edu/node/8019>

Bio sharps

<https://www.ehs.harvard.edu/node/8014>

Disposal Restricted Waste

<https://www.ehs.harvard.edu/node/8020>

Nanomaterial safety and disposal fact sheet

[https://www.ehs.harvard.edu/sites/ehs.harvard.edu/files/nanomaterial\\_safety.pdf](https://www.ehs.harvard.edu/sites/ehs.harvard.edu/files/nanomaterial_safety.pdf)

Environmental toxic waste

[https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261\\_124](https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261_124)

U-Coded and P-Coded Commercial Waste

[https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261\\_133](https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261_133)

Spent solvents

[https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261\\_131](https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261_131)

Industry-specific waste

[https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261\\_132](https://www.ecfr.gov/cgi-bin/text-idx?SID=f6c40cf6cec3b40439514324ae53ce9a&mc=true&node=pt40.28.261&rgn=div5#se40.28.261_132)

Harvard Recycling and Waste Services

<http://energyandfacilities.harvard.edu/facilities-services/recycling-waste-management>

E-waste Recycling Locations

<https://green.harvard.edu/topics/waste/e-waste>

Hygenall Wipes

<https://hygenall.com/industrial-hygiene-and-safety/>

## Hazardous Materials and Disposal

Log into Chemwatch as a Harvard user

<https://www.ehs.harvard.edu/news/material-safety-data-sheets-msds>

Chemical Waste Labeling Tool

<https://www.ehs.harvard.edu/chemical-waste-labeling-tool>

Chemical Waste Pickup/Service Request

<https://www.ehs.harvard.edu/Chemical-Waste-Pickup-Form>

Disposal Restricted Waste Guidance

<https://www.ehs.harvard.edu/node/8020>

Poster: Disposal Guidelines for Non-Biological Sharps

<https://www.ehs.harvard.edu/node/8019>

Sink Disposal at Harvard

<https://www.ehs.harvard.edu/node/8245>

EHS Emergency Resources

<https://www.ehs.harvard.edu/programs/emergency-guidance>

Emergency Response Guide

<https://www.ehs.harvard.edu/node/8206>

Find the evacuation map for your building

<https://www.ehs.harvard.edu/evactrifolds>

Fire Extinguisher training; hands on sessions June-September

[https://trainingportal.harvard.edu/Saba/Web\\_spf/NA1PRD0068/common/ledetail/cours000000000003197](https://trainingportal.harvard.edu/Saba/Web_spf/NA1PRD0068/common/ledetail/cours000000000003197)

## Soldering

Soldering area poster

<https://www.ehs.harvard.edu/node/8295>

Soldering area SOP

<https://www.ehs.harvard.edu/node/8294>

Occupational Exposure from Lead

<https://www.safetyandhealthmagazine.com/articles/15545-protecting-workers-from-lead-exposure>

Jim MacArthur soldering Video

<https://youtu.be/V3w-HpQyC1w>

EHS Hot work page

<https://www.ehs.harvard.edu/programs/hot-work>