

NOAO/NSO Hazardous Materials Transportation Policy

Introduction

Employees, Observers, or Scientists [**Hazmat User(s)**] that are planning to transport and use hazardous materials at AURA's National Solar Observatory (NSO) or the National Optical Astronomy Observatory (NOAO) facilities including Kitt Peak shall comply with all federally mandated regulations, standards and rules. At a minimum, the **Hazmat User** shall comply with: 1) 29 CFR 1910 OSHA General Industry Regulations with emphasis on Subpart H – Hazardous Materials and Subpart Z – Toxic and Hazardous Substances, 2) 49 CFR Parts 100-185 Hazardous Materials Regulations – Hazmat Transportation, and 3) 40 CFR Protection of Environment with emphasis on Subtitle C: Hazardous Waste.

Failure to comply with Federal Regulations and this policy at AURA facilities will require this organization to report the violation(s) to the appropriate regulatory authority(s), which may lead to criminal penalties and loss of observing or hazardous materials use privileges at AURA facilities.

Notification

At least, thirty days before transport, the **Hazmat User** shall provide the NOAO/ NSO Telescope/ Instrument Scientist and the NOAO Risk Manager (cguessner@noao.edu) with a detailed description of the experiment with emphasis on planned safety precautions and provide a list of hazardous materials and/or chemicals that are planned to be brought to the Tucson Facility and/or to Kitt Peak. **Materials shall not be dropped shipped to AURA without prior written approval from the NOAO/NSO Telescope/ Instrument Scientist and the NOAO Risk Manager.**

The NOAO Risk Manager in consultation with scientific staff shall review whether the proposed experiments can be safely done in the facilities existing resources. Depending on the experiment, the **Hazmat User** may be required to provide a "Chemical Hygiene Plan" as required by 29 CFR OSHA 1910.1450 (e). Before the experiment is allowed and hazardous materials are received at AURA facilities in Tucson, the **Hazmat User** shall receive written approval from the NOAO Risk Manager.

Transportation of Hazardous Materials: Shipping Procedures to Kitt Peak

The **Hazmat User** shall ship hazardous materials, in accordance with 49 CFR Parts 100-185 Hazardous Materials Regulations – Hazmat Transportation, to the AURA/NOAO Shipping and Receiving facility in Tucson for transportation to Kitt Peak.

1. **At least thirty days prior to the observing run or the use of hazardous materials**, the NOAO/NSO Telescope/ Instrument Scientist, NOAO Material Transfer Supervisor (caldrich@noao.edu), and the Kitt Peak Facilities Coordinator (mhawes@noao.edu) shall be notified of the pending shipment with

written verification from the **Hazmat User** that the following shipping provisions shall be met:

- a. Each hazardous material shall have an accurate description. Each container shall be clearly labeled by its chemical name (a mixture must list the names of the chemical components) to assist AURA/NOAO Shipping and Receiving personnel in the likelihood of inspecting the contents prior to shipment to Kitt Peak.
- b. The quantities of each material being shipped shall be disclosed.
- c. Material Safety Data Sheets (MSDS) for each hazardous material and/or chemical item shipped shall accompany the shipment.
- d. The hazardous materials and/or chemicals are packed in accordance with 49 CFR Hazmat Transportation Parts 173 and 178. Figure 1 shows a snapshot of DOT packaging restrictions available online by accessing the Hazmat Table link to the left of the web page. (Materials are grouped alphabetically.)

The screenshot shows a web browser window displaying the 'Office of Hazardous Materials Safety' website. The main content is a table titled 'CFR 49 Hazardous Materials'. The table has columns for Symbols, Hazardous materials description and proper shipping names, Hazard class or Division, Identification Numbers, PG, Label Codes, Special provisions (172.102), Packaging (173.***), Quantity limitations, and Vessel stowage. The table is partially filled with data for materials like Accellerene, Accumulators, and Acetal.

Sym-bols	Hazardous materials description and proper shipping names	Hazard class or Division	Identification Numbers	PG	Label Codes	Special provisions (172.102)	Packaging (173.***)			Quantity limitations		Vessel stowage	
							Excep-tions	Non Bulk	Bulk	Passenger aircraft / rail	Cargo aircraft only	Location	Othe
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
	Accellerene, see p-Nitrosodimethylaniline												
	Accumulators, electric, see Batteries, wet etc												
	Accumulators, pressurized, pneumatic or hydraulic (containing non-flammable gas), see Articles pressurized, pneumatic or hydraulic (containing non-flammable gas)												
	Acetal	3	UN1088	II	3	IB2, T4, TP1	150	202	242	5 L	60 L	E	

Figure 1: Online access to packaging regulations regarding hazardous materials.

- e. An instruction for the return of the hazardous materials and/or chemicals after the observing run or its use has been completed to the **Hazmat User** home facility is included with the shipment. If during the experiment the materials have been altered to a different chemical compound, an MSDS for the altered compound shall be provided before shipment occurs. See 29 CFR OSHA 1910.1200 (g) for MSDS document preparation and requirements. Website link is provided in the last section of this document.

2. All hazardous materials must arrive at the AURA facility in Tucson at least seven working days prior to the experiment or its use to allow time to register the hazardous materials and/or chemicals with Chemtrec and shipment to Kitt Peak.

Transportation of Hazardous Materials: Hazmat User Transport to Kitt Peak

If hazardous materials are transported by the **Hazmat User** to Kitt Peak, the **Hazmat User** shall have the required Department of Transportation Certified Driver's License with a Hazmat endorsement. **The Hazmat User shall provide proof of the above certification and MSDS's for each chemical, thirty days prior to the experiment to NOAO/NSO Telescope/Instrument Scientist and the NOAO Risk Manager for approval.**

Experiment Follow-Up and Return of Hazardous Materials

After the experiment or the hazardous material(s) use, no materials shall be left on Kitt Peak without written approval from NOAO/NSO Telescope/Instrument Scientist and the NOAO Risk Manager.

All hazardous materials are to be repacked by the **Hazmat User** in accordance with 49 CFR Parts 100-185 Hazardous Materials Regulations – Hazmat Transportation.

Hazmat User shall utilize AURA/NOAO Shipping and Receiving services to transport the hazardous materials to their home facility. Once the materials are positioned at the AURA/NOAO facility, they become AURA's responsibility during shipping and, as such must be returned to the **Hazmat User's** home facility in accordance with AURA/NOAO procedures.

Arrangements shall be made for the return of the hazardous materials to the **Hazmat User 's** home facility in accordance with the following instructions:

1. Return shipments from Kitt Peak to the AURA/NOAO Shipping and Receiving facility will be coordinated with KPNO Facilities Coordinator, and the NOAO/NSO Telescope/Instrument Scientist.
2. MSDS sheets must be supplied to the individuals who will arrange transportation on NOAO vehicles.
3. The NOAO/NSO Telescope/ Instrument Scientist, NOAO Material Transfer Supervisor and the NOAO Risk Manager are to be notified that the materials are being returned to the AURA/NOAO Shipping and Receiving facility and given:
 - a. The revised quantities of each material being shipped,
 - b. Confirmation that the materials have been repacked in accordance with the appropriate hazardous materials transportation regulations, and
 - c. A restatement of the instructions for the return of the hazardous materials to the **Hazmat User's** home facility once the observing run has been completed.
4. Upon receipt at the AURA/NOAO Shipping and Receiving facility, arrangements will be made by AURA/NOAO to return the materials to the **Hazmat User's** facility.

Indemnification

The cost of all packaging, transportation, and registration shall be borne by the **Hazmat User**.

Any spillage, contamination, damage to the environment, or damage to AURA facilities, which, in the opinion of AURA, was caused by lack of care or by accident on the part of **Hazmat User**, its agents, collaborators, and/or its parent organization, shall be rectified by the **Hazmat User** to the satisfaction of AURA and/or statutory authorities, at the **Hazmat User**, its agents, collaborators, and/or its parent organization's expense.

Hazardous Materials Definition

Hazardous material means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C.

To aid the Hazmat User, the following regulatory links are provided:

<http://www.osha.gov>

http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_art_number=1910

<http://hazmat.dot.gov/regs/rules.htm>

<http://www.epa.gov/epahome/lawregs.htm>

<http://www.regulations.gov/fdmspublic-bld61/component/main>

MSDS preparation:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1552