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A. Background

Risk & Safety Solutions database is the new go-to application to serve the USC research community in the management of their chemical inventory. RSS will utilize RFID technology to tag and track all chemicals on campus. Additionally, RFID technology will allow for inventory reconciliation.

An initial chemical inventory of labs and storage spaces will be conducted by EH&S and entered in RSS. Once the initial inventory is complete, labs will be responsible for maintaining an accurate chemical inventory i.e., input and RFID newly acquired chemicals, manage accurate sublocations within the lab space, and remove empty and/or unwanted containers from the system. The RSS Chemicals Application, which can be downloaded on your mobile device, will be used to RFID tag each container.

B. Purpose

This SOP will provide detailed steps on how to create a chemical inventory in RSS by adding groups (labs), assigning locations, adding a new chemical to your lab's inventory, tagging chemical containers with a RFID, and inputting a chemical in the RSS database (Commercial or Novel chemical). Appendices in this SOP will also provide details on how to import large amounts of chemicals via an excel template, summarize helpful features in the new RSS chemical inventory platform, and troubleshooting guides.

C. Resources

- C.1. [RSS Chemical Inventory Quick Start Guide Sheet](#)
- C.2. [YouTube training videos for RSS Chemicals](#)

D. What to Add to your Chemical Inventory

- D.1. Any chemical stock container that contains any amount of a hazardous substance which falls into one or more OSHA/GHS health or physical hazard class according to its labeling and SDS.
 - D.1.a. Include stock containers that are transferred to any other container for long-term storage.
 - D.1.b. Include stock containers that are transferred to an acid/base bath.
 - D.1.c. Include kits that contain hazardous substances
- D.2. All compressed, liquefied, or frozen gas cylinders (including inert gases and lecture size bottles).
- D.3. All non-pressurized cryogenic dewars (any that are larger than a hand-held).
- D.4. Synthesized (novel) chemicals that exceed 10 g or 10 ml AND intended for long-term storage (>1 year).

E. RSS Getting Started

E.1. Log into the [RSS Website](#):

E.1.a. **Adding a Location:**

- i Under **Group Membership**, select the group you created.
- ii Select the **Locations** tab on the right side.
- iii Click on the "+" icon at the bottom right corner.
- iv Search for building and room number and then select **Save**.

Note: If you do not see your location building or room, please email Chris Allison at callison@usc.edu.

E.1.b. **Adding a sublocation:**

- i From the chemicals home screen, select **Inventory Summary** > scroll to the bottom to locate **Sublocations**.
- ii Select the "+" icon to the right of the Sublocations.
- iii Select the **Building Name**.
- iv Select the **Room Number**.
- v Enter in a **Sublocation Name**. (e.g., Flammable Cabinet, Shelf 1)
- vi Please note, EH&S has created all sublocations for the initial inventory. Additional sublocations can be created here.

F. RSS Chemical Inventory Process Desktop

F.1. Log into the [RSS Website](#)

[Please refer to the YouTube training video for a step-by-step process:](#)

F.1.a. **Adding a Chemical to your Inventory:**

- i From the RSS platform homepage, select the More Apps dropdown on the left side.
- ii Select **Chemicals**. You will be taken to the chemicals home screen
- iii To add a chemical, select **Add to Inventory**.
- iv Search by **product ID**, **CAS number**, or **chemical name**.
- v Select the chemical you want to add from the search results.
- vi Scroll down to **Containers**. Select the "+" icon to the right of the **Containers** to display the details form.



- vii The RFID tag can be entered manually or scanned with your mobile device.
- viii Fill in all required information.
 - a. Number of containers, container size, units, physical state, container type, and location.
 - b. Please note, the container type for cryogenic liquid gas cylinders is "Cylinder," whereas non-pressurized cryogenic gas dewars are "Cryogenic Dewars."

F.1.b. **Optional information:**

- i Substance, tags, concentration, concentration units, solvent, received date, expiration date, opened date, and last tested date.

F.1.c. **Required information:**

- ii Please note, received date, expiration date, opened date, and last tested date are **REQUIRED** fields for all [time sensitive chemicals](#) and [organic peroxide formers](#).

F.2. Time Sensitive Chemicals:

F.2.a. Potassium and Sodium Potassium alloy

- i **Visual** inspection for minimal or no crust, not thick or "furry," or white, yellow, or very pale grey.
- ii Add expiration date of 1 year and add "No visible crust, minimal surface oxidation" in the **Comments** section.

F.2.b. Potassium Amide, Sodium Amide, and Other Alkali-Metal Amides

- i An alkali metal amide may be stored for a maximum of one year after opening, or maximum of two years since purchase, whichever comes first.

F.2.c. Hydrogen bromide gas and anhydrous hydrogen fluoride

- i Add purchase date and expiration date to the cylinder and into RSS chemical inventory.
- ii Manufacturer's expiration date or 2 years after purchase date.
- iii Upon reaching expiration date, either return the cylinder to the vendor or test cylinder pressure.
 - a. If cylinder pressure exceeds vapor pressure, cylinder shall be discarded.
 - b. VP of HBr: 320 psig at 70°F
 - c. VP of HF: 0.7 psig at 70°F, 7.9 psig at 90°F
 - d. If pressure is normal, write testing date on the cylinder and increment expiry date into RSS chemical inventory one year into the future.

F.2.d. Organic Peroxide Formers

- i Class C cannot be tested and shall be disposed of once expired.
- ii Class B that shall **ALWAYS** be dated are outlined in the table below:

Benzylic secondary alcohols	Glycol ether solvents	Diethylene glycol dimethyl ether	2-butanol
Cumene	Decahydronaphthalene	Diethoxymethane	Diethyl ether
Dimethoxymethane	1,4-Dioxane	1,3-Dioxane	1,3-Dioxolane
Methyl isobutyl ketone	2-Methyltetrahydrofuran	1,2-Dimethoxyethane	Tetrahydrofuran
Tetrahydronaphthalene			

F.3. Peroxide former EXCEPTIONS:

F.3.a. Reagents

- i Peroxide formers (Class B) as reagents (not solvents) ≤ 500 ml do not require dates.

F.3.b. Solvents

- i Solutions, in a Class B solvent (e.g., THF, Et₂O), of strongly reducing materials which are very reactive with oxygen, and which must be stored under N₂ or Ar, do NOT require dates. In this case, you may select the "Ignore" option when alerted.
Common examples:
 - a. Grignard reagents
 - b. Alkyl Lithium and reactive metal alkyls
 - c. Most other organometallics
 - d. Any pyrophoric
 - e. Reactive Metal hydrides
 - f. Air reactive phosphines, boranes

g. Silanes with an Si-H bond


F.3.c. **Miscellaneous**

- i Small amounts of deuterated solvents used for NMR.
- ii Materials sealed inside glass ampoules.
- iii Very small samples (≤ 25 mL) used as analytical standards, etc.
- iv Paints and adhesives containing Class B solvents (e.g., some adhesives contain THF).
- v Solvent present in a solvent purification system, provided the system is used at least occasionally.
 - a. The following note should be included in the **Comments** section of that chemical container: "**No date required due to solvent system in use and flushed with N₂.**"
- vi Class C materials (stabilized or unstabilized) may be excepted from dating requirements when ALL of the following apply:
 - a. Quantity ≤ 1 g or 1 mL, and NOT also in Class A

F.4. Substance Field:

F.4.a. **Vender/Substance not available**

- i If the substance field is left blank, please type in the vendor's name in the **Comments** section at the bottom of the page.
- ii The correct vendor/grade is not visible in the drop-down menu. Once you select an option and press save, the vendor information will be available in the previous screen as shown in the photo below:

Hexamethylenetetramine - Location: LHI-Donald P. & Katherine B. Loker Hydrocarbon Institute 112 - Shelve 112 (B8) 

Barcode: CA0000000000000000B1A7F

Container Size: 1 kg | Amount: 1 kg

Type: Glass Bottle

Physical State: Solid

Received: 11/30/2022

Vendor: SIGMA

- a. Thermo Fisher Scientific subsidiaries consist of Alfa Aesar, EMD Millipore, Lancaster Synthesis, ACROS Organics, and MP Biomedicals, Avocado.
- b. Sigma-Aldrich subsidiaries consist of Fluka and Isotec.
- c. VWR subsidiaries consist of BDH Chemicals, Amresco, Avantor, and JT Baker.
- d. Macron Chemicals subsidiary consists of Mallinckrodt Chemicals, Fisher Scientific, and Avantor.
- iii Select **Save**.

F.5. Adding a Chemical Not in the Database:

F.5.a. **Commercial Substance**

- i From the RSS platform homepage, select the **More Apps** dropdown on the left side.
- ii Select **Chemicals**. You will be taken to the chemicals home screen.
- iii Select **Add to Inventory**.
- iv Select the **Vertical Ellipses** (three dots) icon on the right side of the container.
- v Select **Add a Commercial Substance**.
- vi Fill in all required information.
- vii Name, vendor, physical state, and product number.

- USC** Environmental
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- iii Fill in all required information.
 - a. Name, vendor, physical state, and product number
- iv If you choose, you can fill in the optional information.
 - a. Any information you can provide/attach will assist RSS Chemist's with updating the database (e.g., SDS's).
- vii Select **Submit**.

G.3. Scanning a RFID tag:

G.3.a. Container

- i After adding a chemical to your inventory search through your inventory database by selecting **Inventory**.
- ii Search for the chemical in the top search bar by **CAS, Chemical Name, or Product ID**.
- iii Select the correct chemical from the results page.
- iv Select **Containers** tab and select correct container. It will appear with no barcode.
- v Select **Edit**.
- vi Under **Barcodes**, select the **Scan icon**.

Barcode

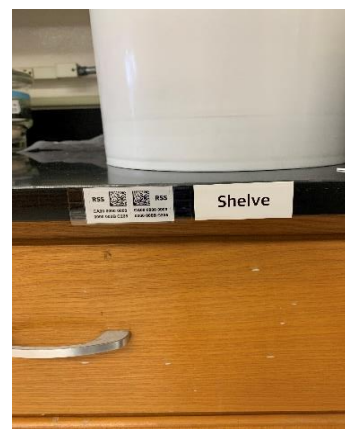
Enter barcode




- vii A camera will appear and the RFID tag on the container can be scanned at this time.
 - a. The **Container** section should show a barcode (e.g., CA00000000000000001BC20F).
 - b. Please note, if you scan the wrong barcode (not RFID), it will appear as a website or another form of barcode in the **Container** section. All correct RFID tags will follow the above example formatting.
 - c. Select **Save Changes** to save.

G.3.b. Sublocation:

- i Add a physical RFID tag to each sublocation as shown in the example below.



- i Select **More** on bottom right side of the UC Chemical app.
- ii Select, **Barcode Your Sublocations**.
- iii Scroll to find the desired sublocation and select **Scan** icon. 
- iv Once the scan is complete, it will automatically be saved.

H. RSS RFID

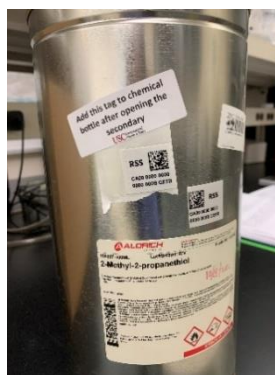
H.1. RFID Barcoding and Placement:

H.1.a. Barcoding a Chemical Container with a RFID tag:

- i Add a physical RFID tag to each individual chemical container. As best as possible, do NOT cover the manufacturer's original label. Flagged tags work best for during the annual reconciliation inspection.

H.1.b. Properly placing the RFID tag to the chemical container:

- i Secondary containers (tins, polyethylene bags/bins, cardboard boxes, etc.) should NOT solely be labeled.
 - a. Many materials (e.g., pyrophorics) are packaged and delivered in a tin container by the manufacturer. If these materials are required to be stored in the tin (or other secondary) for safety reasons, always add the RFID tag to the physical chemical container.
 - b. You may also add an additional RFID tag to the tin (or other secondary) as each tag comes with two barcodes. The tag may be cut in half and placed in two locations (e.g., chemical bottle and tin secondary) as shown in the photos below. **Please note, both halves do NOT contain a RFID chip.** The barcode that is placed on the chemical bottle must be the half that contains the chip, which can be seen from the backside of the label.



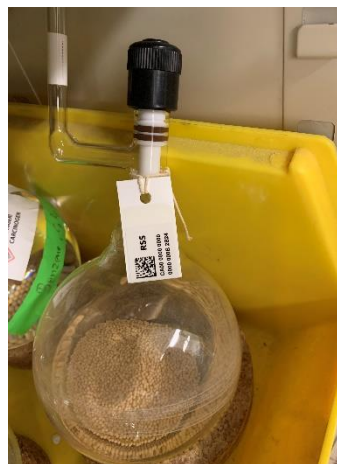
- c. If the chemical container is packaged in an airtight seal bag, you may label the bag to avoid breaking the seal.
- d. Ampule boxes may be labeled to avoid labeling each individual ampule (e.g., ten 1 ml ampules in one box can be inventoried as 10 ml total with one RFID tag on the box) as shown in the photo below:



H.2. RFID Cardstock and string:

H.2.a. Adding a RFID tag to stock chemicals transferred to glassware (e.g., round bottom flasks).

- i Ideally, the glassware should not directly be labeled, as this may not be a permanent location for the chemical. However, if labeling the glassware is preferred, please ensure the RFID tag remains with the chemical when it is transferred.
- ii Alternatively, add the RFID tag to a cardstock attached by a string to the glassware. This method is also preferred for ampoules purchased individually (not in a box set) that are not in a secondary container as shown in the photos below:



H.2.b. Adding a RFID tag to gas cylinders.

- i Add the RFID tag to the cardstock attached by a string to the gas cylinder neck or shoulder as shown in the photos below. **DO NOT** label the gas cylinder directly with the RFID tag.



- ii When possible, re-using the RFID tag is encouraged when old gas cylinders go empty and are replaced with an identical or similar gas cylinder.
- iii For example, if your lab re-orders nitrogen gas (steel cylinder, 300 ft³) on a consistent cycle, it is much easier to re-use the same RFID tag and transfer the tag to the new gas cylinder. In this case, the RSS inventory will not require any additional updating unless the quantity or size of the cylinder has changed.
 - a. Please note, if you choose not to recycle the RFID tag, then the RSS inventory will require updating (add/remove gas cylinders, etc.).

H.3. RFID Glovebox:

H.3.a. Adding a RFID tag to chemicals stored in a glove box.

- i Chemicals stored in a glove box do not have to be individually labeled during the initial inventory. Alternatively, RFID tags may be added to a separate card with a ring and clearly stored near the glove box.
- ii Add chemicals stored in the glove box to the excel template provided to you by the chemical inventory team. Please email Nassim Haddad, nassimha@usc.edu, if you do not have a copy. Email the updated excel to Nassim.
- iii Once the template has been uploaded, RFID tags will be added to a separate card with a ring as shown in the photo below:



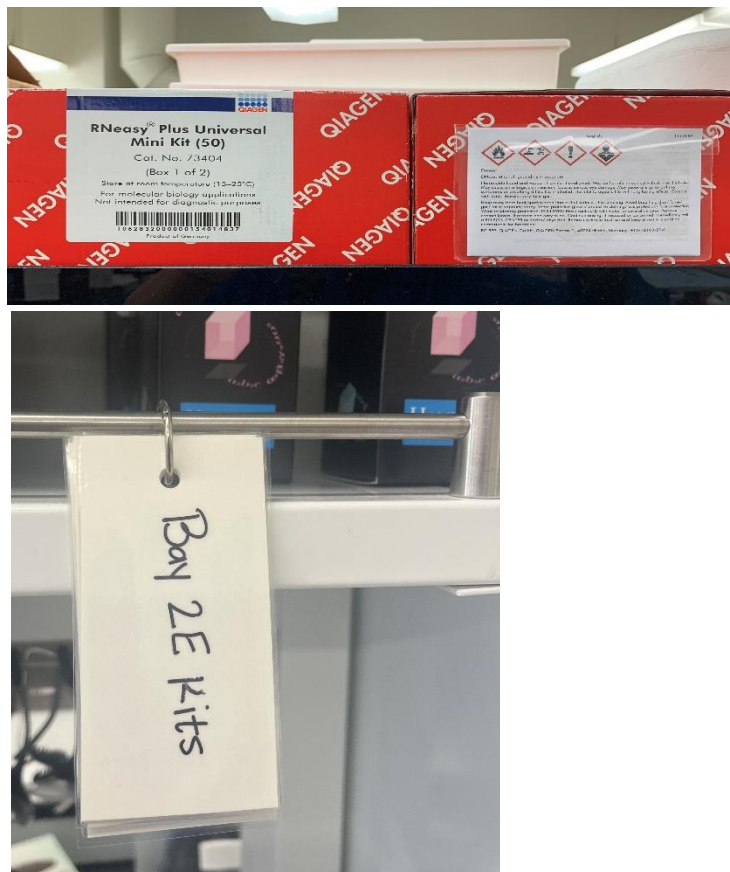
H.4. RFID Kits:

H.4.a. Adding a RFID tag to chemicals stored in a kit.

- i Kits with hazard warnings (e.g., GHS) should be inventoried as one container, where the container size is the total amount of chemical substance in the kit.
- ii If multiple kits of the same type (e.g. same product number) exist, then only one kit shall be inventoried, and the total number of kits are noted in the **Comments** section in RSS as shown below:

<p>RNeasy Plus Universal Mini Kit (50) -</p> <p>Barcode: CA0000000000000000138F82</p> <p>Comments: 2 kits</p> <p>Container Size: 100 mL Amount: 100 mL</p> <p>Type: Plastic Bottle</p> <p>Physical State: Liquid</p> <p>Received: 8/3/2023</p> <p>Vendor: Qiagen</p>
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- iii Once inventoried, the RFID does NOT need to be placed on each kit but rather in a location near the kit in a separate ring, as shown in the photos below:



I. Appendices

I.1. Import Chemical Inventory in RSS via Excel Template:

I.1.a. Download the Excel Template

- i Using an excel template to upload your chemical inventory into RSS can be convenient for larger quantities of chemicals. Prior to uploading an excel file, an inventory with groups and sublocations must be created first.
- ii Log into the [RSS Application Website](#).
- iii Select **More Apps > Chemicals**.
- iv Select the appropriate inventory.
- v Select **Inventory Summary**.
- vi Scroll down to **Import and Export**.
- vii Select **Import > Download Template > Open File**.

I.1.b. Filling out the Excel Template

- i You must fill out the required fields in the excel template otherwise the inventory will not upload. Non-required fields are optional. The following information is required to be filled out:
 - a. **CAS number.**
 - b. **Chemical Name.**
 - c. **Building:** Including building name abbreviation followed by the full name of the building. We recommend copying and pasting building names exactly as

they appear on the **Inventory Summary** page.

- i. Example: LJS- Laird J. Stabler Memorial Hall
- d. **Room:** Room number.
- e. **Sublocation:** A location within a room. We recommend copying and pasting sublocation names exactly as they appear on the **Inventory Summary** page.
 - i. Example: Flammable cabinet, shelf 1, etc.
- f. **Size:** the amount indicated on the stock bottle. Always use whole numbers.
- g. **Units:** abbreviated unit of measure (g, mL, ft³, etc.). Only use options in dropdown.
- h. **Container type:** Only use options in dropdown.
- i. **Number of containers.**
- j. **Physical state:** (Solid, liquid, or gas). Only use options in dropdown.

I.1.c. Uploading an Excel Template

- i. Fill out the template according to the instructions below.
- ii. Upload the excel template.
- iii. Once you upload the file, scroll down to **Exact Matches** > **Select All** > **Save**.
- iv. Scroll down to **Multiple Matches** > **Select All** > **Save**.
 - a. The chemicals that were listed under **Multiple Matches** will likely need to be reassigned once you are physically in the lab and can verify the correct match.
- v. Select **Done** at the bottom of the screen to save the inventory.
- vi. Please note, always use a new excel document when uploading into RSS. Adding chemicals to a previously uploaded excel will cause duplication.

I.1.d. Uploading Errors

- i. If any input in the excel appears as an error, it will not upload into the RSS inventory. Errors must be fixed prior to re-uploading. An error can occur if:
 - a. CAS numbers do not match the RSS database. Chemicals match primarily on CAS numbers, so any item without a CAS number will automatically display an error.
 - b. Units of measure are not recognized (must match an option in the dropdown menu in the template).
 - c. Container type is not recognized (must match an option in the dropdown menu in the template).
 - d. When a location/room is not included as part of the inventory. Every space must be listed under your Groups location.
 - i. If you do not see your location building or room, please email Chris Allison at callison@usc.edu.

I.2. Gas Cylinder Container Sizes:

If the volume (ft³, lb., g, kg) is indicated on the gas cylinder, always use this value to input as the container size in RSS. If not, please follow the steps below to determine the volume of the gas in the cylinder.

I.2.a. Lecture Bottles

Table 1: Size (volume) of lecture gas bottles

Gas (Lecture Bottle)	Volume	Gas (Lecture Bottle)	Volume
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Ammonia	170 g	Krypton	50 L
Argon	57 L	Methane	57 L
Carbon Dioxide (CO ₂)	227 g	Neon	25 L, 50 L
Carbon Monoxide (CO)	50 L	Nitric Oxide (NO)	14 L
Chlorine	450 g	Nitrogen	57 L
Deuterium	50 L	Nitrogen Dioxide (NO ₂)	150 g
Dimethyl Ether	100 g	Nitrous Oxide (N ₂ O)	227 g
Ethane	110 g	Oxygen	57 L
Ethylene	110 g	Silane	10 g
Helium	57 L	Sulfur Dioxide (SO ₂)	450 g
Hydrogen	57 L	Sulfur hexafluoride (SF ₆)	227 g
Hydrogen Bromide (HBr)	450 g	Xenon	50 L
Hydrogen Chloride (HCl)	227 g	Liquefied Hydrocarbons*	170 g
Hydrogen Fluoride (HF)	227 g		
Hydrogen Sulfide (H ₂ S)	227 g		

*All hydrocarbons are liquefied except methane, ethane, and ethylene. **ALWAYS put 170 g as the container size.** This is an estimate based on n-butane. (Please note, ethane does liquefy but it does not share the same value as other liquefied hydrocarbons)

I.2.b. Liquefied Pure Gases

- iv Applies to all hydrocarbons except methane and ethylene.
- v Dilute mixtures of hydrocarbons with permanent gases (e.g., 1% butane in nitrogen) should be considered as pure permanent gases (e.g., nitrogen) for the purposes of estimating gas volume.

I.2.c. Use the [Gas Volume Estimation spreadsheet to calculate the volume](#)

- i Determine the size (mass) of the cylinder by:
 - a. Measure the height and diameter of the cylinder. Height is measured from the bottom of the cylinder to the cylinder neck.
 - b. Input the height and diameter of the cylinder into the cells located at the top of the excel worksheet (B1 and B2 highlighted in yellow and orange).
 - c. Find the type of gas listed in column A and the accompanying mass (lb.).

I.2.d. All other pure gases (in the gaseous state)

- i Dilute mixtures of hydrocarbons with permanent gases (e.g., 1% nitric oxide in nitrogen) should be considered as pure permanent gases (e.g., nitrogen) for the purposes of estimating gas volume.
- ii Measure the height and diameter of the cylinder. Height is measured from the bottom of the cylinder to the cylinder neck.
- iii Use Table 2 below to find the type of gas, the correct height and diameter (based on step ii above) and its accompanying volume.

Table 2: Specifications of Gas Cylinders

Gas	Style	Type	Size (in)	Pressure (psig)	Volume
Acetylene	A5	LP Steel	51 x 12	250	360 ft³
Air, Argon, Helium, Nitrogen, Oxygen	T	HP Steel	55 x 9.3	2640	~300 ft³
	K	HP Steel	51 x 9	2200	~200 ft³
	Q	HP Steel	31 x 7	2200	~80 ft³
	AT (Argon, N2)	HP Al	54 x 10	2200	~ 272 ft³
	AT (Helium)	HP Al	54 x 10	2200	110 ft³
	AS	HP Al	48 x 8	2000	~150 ft³
	AQ	HP Al	33 x 7.3	2200	83.2 ft³
Boron Trifluoride	A3	HP Al	16 x 6.9	2200	31 ft³
	L4	HP Steel	14 x 4.2	675	400 g
Carbon Monoxide	ELB	HP Steel	16 x 2	700	80 g
	T	HP Steel	55 x 9.3	2000	244 ft³
Carbon Monoxide	K	HP Steel	51 x 9	1660	181 ft³
	Q	HP Steel	31 x 7	1660	61 ft³
	AT	HP Al	54 x 10	2200	254 ft³
Deuterium	T	HP Steel	55 x 9.3	2351	7300 L
	K	HP Steel	51 x 9	1786	5000 L
	Q	HP Steel	31 x 7	1918	2000 L
Ethylene	T	HP Steel	55 x 9.3	1600	37 lb
	K	HP Steel	51 x 9	1200	30 lb
	Q	HP Steel	31 x 7	1200	10 lb
	G	HP Steel	20 x 6	1200	4.5 lb
Hydrogen	T	HP Steel	55 x 9.3	2400	261 ft³
	K	HP Steel	51 x 9	2000	196 ft³
	G	HP Steel	20 x 6	2000	33.2 ft³
	Q	HP Steel	31 x 7	2000	65 ft³
Krypton, Neon	T	HP Steel	55 x 9.3	2218	10000 L, 7500 L
	K	HP Steel	51 x 9	1792	7000 L, 5000 L
	Q	HP Steel	31 x 7	1557	~2000 L
	D4	Non-ref Steel	4.25 x 13	1462	300 L
	D8	Non-ref	4.25 x	1311	100 L

		Steel	7.75		
	ELB	Non-ref Steel	2 x 14.25	1119	50 L
Methane	T	HP Steel	55 x 9.3	2400	346 ft³
	K	HP Steel	51 x 9	2000	255 ft³
	Q	HP Steel	31 x 7	2000	85 ft³
Nitric Oxide	K	HP Steel	51 x 9	500	56 ft³
	Q	HP Steel	31 x 7	500	19 ft³
	G	HP Steel	20 x 6	500	9 ft³
Xenon	K (5K)	HP Steel	51 x 9	836	5000 L
	Q	HP Steel	31 x 7	655	1000 L
	D4	Non-ref Steel	13 x 4.25	858	300 L
	D8	Non-ref Steel	7.75 x 4.25	801	100 L
	ELB 50	Non-ref Steel	14.25 x 2	796	

I.2.e. Gas Cylinder Resources

- i [Cylinder size chart \(various manufacturers\)](#)

I.3. Helpful Features:

RSS offers additional features that can assist in efficient inventorying, possible cost savings, and convenient tracking. [Please refer to the YouTube training video for a summary of each of these features.](#)

I.3.a. Checkout

- i Allows a lab to borrow a chemical from another lab/colleague by searching the chemical database in RSS. Checking out a container is temporary with **the intention of the container being returned to its inventory group.**
- ii **Checkout**
 - a. Under the **Chemicals** home page, select **Search Chemicals**.
 - b. Search for the chemical and then select the vertical **Ellipses** located on the side of the container option.
 - c. Select Checkout to **Myself/Checkout** to **Pending Request/Checkout Person Search** (search by name/email)
 - d. It will state **"Checked out to: Lily from Trojan Lab Inventory"** and it will appear as **Checked out** under [Share Chemicals](#) screen on the home page.
- iii **Recall**
 - a. Ask for the chemical to be returned by selecting the **Vertical Ellipses**.
 - b. An email will be generated to the person who checks out the chemical.
 - c. It will state **"Container has been recalled"** next to the chemical.
- iv **Return**
 - a. Under the **Chemicals** home page, select **Search Chemicals**.
 - b. Search for the chemical and then select the **Vertical Ellipses** located on the

side of the container option.

- c. Select **Return**.
- d. Once a chemical is returned, confirm it has been returned by selecting **Return** option found in the vertical ellipses next to the chemical.

I.3.b. **Transfer**

- i Any chemical container that is not needed for future use can be transferred to another PI's chemical inventory. This is a permanent transfer.
- ii **Outgoing (Sender)**
 - a. Under the **Chemicals** home page, select **Search Chemicals**.
 - b. Search for the chemicals that will be transferred.
 - c. Select containers to add to the transfer queue by:
 - i. Selecting the vertical **Ellipses** on the side of the container option.
 - ii. Select **Transfer**.
 - iii. Add all containers for transfer and place in the queue.
 - iv. Select **Transfer**.
 - d. Under the **Transfer Summary** page, select the following inventory to transfer the containers.
 - e. Search for the appropriate inventory by group name.
 - f. Confirm Transfer.
 - g. It will state "**Pending transfer to Tommy Trojan Lab Inventory**" while in queue.
 - h. You can also access all pending transfer(s) from the **Pending Transfer** screen on the home page.
 - i. A transfer can still occur when an inventory is set to private.
- iii **Incoming (Acceptor)**
 - a. From the **Chemicals** home page, select **Pending Transfers**.
 - b. Select **Location**.
 - c. Select **Incoming Chemicals** and **Accept Transfer**.
 - d. A transfer can be accepted or declined.

I.3.c. **Dispense**

- i Allows for dilutions to be created from a stock container. Generally intended for Stockrooms.

I.3.d. **Clone**

- i Creates a copy. Useful where there are multiple containers of the same reagent. All data/information is transferred.
- ii The barcode ID will not be transferred to the newly created container. A new RFID tag will need to be added.
- iii You may clone a container even if some information (e.g., quantity) differs as these fields can be edited after cloning.
- iv Comments will be cloned via the mobile app.

I.3.e. **Edit**

- i Allows container details to be uploaded or modified by the user.

I.3.f. **Remove**

- i Deletes the container(s) from the inventory. This **cannot** be undone once confirmed.

I.3.g. **Move**

- i Permits the transfer of a container or multiple containers from one sublocation to another sublocation within the inventory.

I.3.h. **Reassign**

- i A quick and easy way to assign a chemical that was initially entered into the inventory incorrectly. This will correct any chemical that was assigned incorrectly (e.g., acetone vs acetone-d6). Reassigning the container will update the chemical name/CAS # and retain the container details such as barcode, size, unit, type, sublocation, etc.

I.3.i. **History**

- i Provides detailed information as to when a container was modified, what was

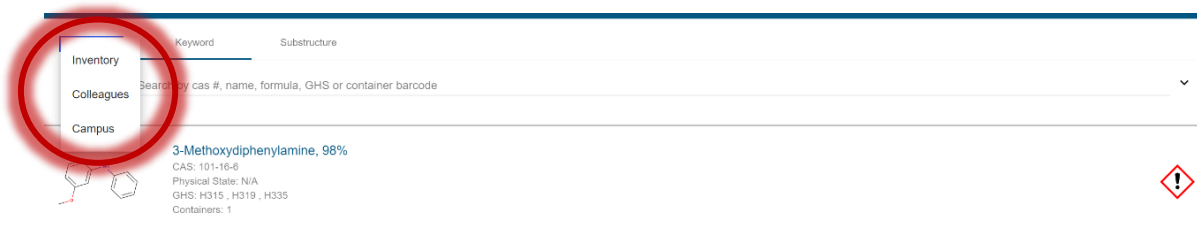
modified, and by whom.

I.3.j. Colleagues

- i With Colleagues, you can search and request chemicals for your lab. First, you will need to add colleagues to your profile, located under Inventory Summary on a web browser. This feature is useful when sharing chemicals with multiple groups or in a building.
- ii Add a colleague by going to the **Inventory Summary** page. Search for inventories to become colleagues.
- iii A request will be sent to be accepted or rejected.
- iv Go to requested inventory to accept or reject.
 - a. Chemicals can be searched between colleagues.

I.3.k. Requests Sent

- i Under the Chemicals home page, select Search Chemicals.
- ii Under the top left hand corner, select the drop down menu and choose which inventories you would like to search (Inventory, Colleagues, or Campus) as shown below:



- iii Search CAS/name/formula.
- iv Select the desired chemicals.
- v Select who you are borrowing from (e.g., **Trojan Lab Inventory** or **Campus request**).
 - a. A request will be sent to all the labs with that specific chemical if **Campus Request** is selected.
- vi Create a **Message** and select **Send**.
- vii You can only set up colleagues via a web browser and not the RSS Chemicals app.
- viii An email is generated and sent to the lab manager.
- ix Keep track of requests under [Share Chemicals](#) screen on the **Chemicals** home page.

I.3.l. Requests Received

- i Under the **Chemicals** home page, select [Share Chemicals](#).
- ii Under Request Received, select Request Chemical.
- iii Follow **Checkout Procedure** as outlined I.3.a.

I.4. RSS Administrative Tasks:

I.4.a. Creating a Group

- i Select **Profile** by clicking on the username in the upper right-hand corner.
- ii Under **Group Memberships**, select **Create Group**.
- iii Enter a group name.
 - a. Group name should follow the format "**PI's first name & last name Lab.**" (e.g., Tommy Trojan Lab).
 - b. EH&S has created all groups during the initial inventory. Additional groups can be created here, if needed.
- iv Once a group name is created, the **Members** tab on the right side will be highlighted. Then, click on the "+" icon at the bottom right corner to add any additional lab members.
- v To create more groups, select **View More** > "+" icon > enter a new group name.
- vi All groups created will be displayed under **Group Memberships**.

I.4.b. **Creating an Inventory** [Please refer to the YouTube training video for a step-by-step process](#)

- i From the RSS platform homepage, select the More Apps dropdown on the left side.
- ii Select **Chemicals**. You will be taken to the chemicals homescreen.
- iii Under **Welcome**, select the dropdown arrow.
- iv Select **Create a New Inventory**.
- v Search for a **Group Owner** and then check the box with the correct Group.
- vi Create the inventory name.
 - a. The inventory name should follow the format "**PI's last name Lab Inventory**" (e.g., Trojan Lab Inventory).
- vii Once an Inventory name has been assigned, sub locations can be established. Please refer to Section 1b for details on how to add a sublocation.
- viii **Barcode**- The RFID tag can be entered manually or scanned with your mobile device.
- ix **Temperature** and **Pressure** default to Ambient and can be edited as needed.
- x Mark the sublocation as private to prevent sharing if needed.
- xi Select the appropriate pictograms associated with the chemicals stored in the sublocation.
- xii Select the **Save** icon.

I.5. **Troubleshooting:**

I.5.a. **Resources**

- i Resources are available if you need assistance troubleshooting, navigating, or searching the RSS platform.

I.5.b. **Search Support**

- i Use the [search support](#) option located on the top right corner of the Chemical Inventory Homepage. Select the ? to begin a search.

I.5.c. **Submit a Ticket**

- i Submit a ticket. If any errors have occurred and you need assistance to troubleshoot the issue, you may submit a ticket to RSS.
 - a. Scroll down to the bottom of the [search support](#) page. Select Submit a Ticket at the bottom of the page.

I.5.d. **Contact EH&S**

- i If you require any assistance or would like to report an issue with the RSS chemical inventory system, please contact EH&S's Chemical Inventory Program Manager, Nassim Haddad, at nassimha@usc.edu.
- ii You may also contact EH&S at ehs@usc.edu.

I.5.e. **Groups Error**

- i When adding lab personal after a group and inventory has been created a message may appear stating that person is not affiliated with an inventory. To troubleshoot:
 - a. Go to Groups.
 - b. Select the Group to add members.
 - c. Select Documents on the right-hand side.
 - d. Click chemical inventory under Type and select save.