

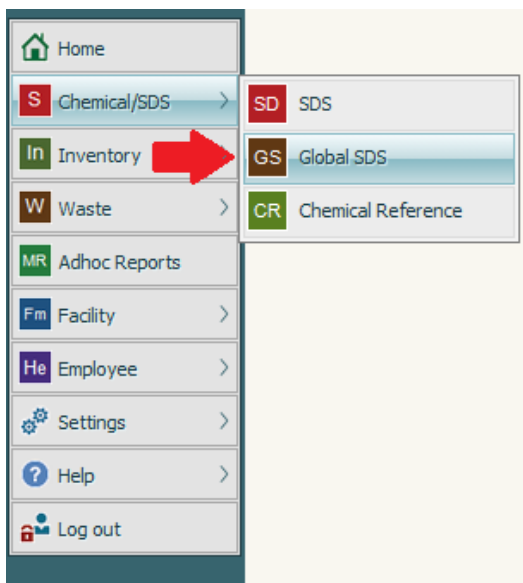
Getting Started with EMS Chemical Inventory

The Chemical Safety EMS system is used for two functions: chemical waste pickups and chemical inventory. This guide will focus on the aspects of navigating the chemical inventory side of the system.

There are three main areas of the system that will be used to manage your chemical inventory: Global SDS, SDS, and Container.

1. Global SDS

The Global SDS is a catalog of SDS records with SDSs from the top chemical manufacturers in the country such as Fisher and Sigma-Aldrich. Not every manufacturer is represented in this catalog though. The Global SDS can be accessed from the Home page by hovering over “Chemical/SDS” on the left side of the screen and clicking “Global SDS”.



The Global SDS search page contains a multitude of search criteria. The most useful options available are ‘Name’, ‘Manufacturer’, and ‘CAS’.

Search	
Name:	Equals
Product-CAS-Synonyms:	Contains
Green Alternative For:	Equals
Manufacturer:	Equals
Supplier:	Equals
Part Number:	Equals
SDS #:	Equals
Revision Date:	Equals
Entry Date:	Equals
Synonyms:	Equals
CAS:	Equals
Regulation:	Equals
Location:	Equals
Facility:	Equals
Component Regulation:	Equals
Composition Name:	Equals
Department:	Equals
Composition CAS:	Equals
Hazard Class:	Equals
Hazard Codes:	Equals
Precautionary Statements:	Equals

Search

Each search option also has a default “operation” attached to it. In most cases, the default is set to ‘Equals’ but that can vary depending on the field. You can change this operation to whatever may suit your searching needs. A list of options is shown below:

Search	
Name:	Equals
Product-CAS-Synonyms:	Begins with
Green Alternative For:	Contains
Manufacturer:	Equals
Supplier:	Not equal
Part Number:	Greater than
SDS #:	Less than
Revision Date:	Is blank
Entry Date:	Is not blank
Synonyms:	Equals
CAS:	Equals
Regulation:	Equals
Location:	Equals
Facility:	Equals
Component Regulation:	Equals
Composition Name:	Equals
Department:	Equals
Composition CAS:	Equals
Hazard Class:	Equals
Hazard Codes:	Equals
Precautionary Statements:	Equals

Search

For a sample search, 'sulfuric acid' was entered into the 'Name' field with the 'Equals' operation. Below are the results of the search:

Product Name	Manufacturer	SDS#	Revision Date	Entry Date	Inventory	SDS
Sulfuric acid	Acros Organics	30006935	3/20/2014		<input type="checkbox"/>	SDS >
Sulfuric acid	Fisher Scientific	30015371	1/23/2018		<input type="checkbox"/>	SDS >
Sulfuric acid	Science Lab	30028776	5/21/2013		<input type="checkbox"/>	SDS >
Sulfuric acid	Sigma Aldrich	30079574	4/20/2020		<input type="checkbox"/>	SDS >
Sulfuric acid	ThermoFisher	30167830			<input type="checkbox"/>	SDS >
Sulfuric Acid	Avantor	30191696	3/26/2018		<input type="checkbox"/>	SDS >
Sulfuric acid	Alfa Aesar	30291414	9/6/2017		<input type="checkbox"/>	SDS >
Sulfuric acid	Fisher Scientific	30343294	5/21/2012		<input type="checkbox"/>	SDS >
SULFURIC ACID	Ecolab	30499169			<input type="checkbox"/>	SDS >
Sulfuric Acid	Avantor	30602347	10/15/2014		<input type="checkbox"/>	SDS >
Sulfuric acid	Sigma Aldrich	30618037	1/13/2020		<input type="checkbox"/>	SDS >
Sulfuric acid	Sigma Aldrich	30618607	1/13/2020		<input type="checkbox"/>	SDS >
Sulfuric acid	Sigma Aldrich	30624274	1/13/2020		<input type="checkbox"/>	SDS >

To view the record, click in the '>' button on the right side of the table. For this example, the first record in the table is the one we want to view. There are four pages to each SDS record: Product Data, SDS Image, Chemical Reference Data, and Environmental Data. Each page is accessible by the corresponding tabs at the top of the page. The first page displayed is the product data. Aside from basic identifying information about the product, there is also NFPA/HMIS data and any applicable Tier II hazard codes.

Product Name: Sulfuric acid
 Manufacturer: Acros Organics
 SDS #: 30006935

Product Data | SDS Image | Chemical Reference Data | Environmental

Supplier: Acros Organics
 Product/Chemical Name: Sulfuric acid
 CAS #: 7664-93-9
 Revision Date: 3/20/2014
 Entry Date:
 Date Received:
 Source:
 Storage Plan:
 Shipping Name:
 Add'l Ship Desc:
 Specific Comments:
 Type of Use:

Physical State:
 Pure/Mix/Dilution:
 Emergency #:
 Color Codes:
 Storage Plan #:

Product Type:
 Product #:
 Expiration Date:
 Expiration Days:
 Target Organs:
 Entry Routes:
 Immediate Area Action:

Requires Approval for Purchase:
 Confidential:
 Restrict Access:
 IGT:
 Under Review:

NFPA/HMIS

Health: 3
 Flammable: 0
 Skin/Eye:
 Chronic:
 Reactive: 2
 Special: W
 Personal Equipment: B-Safety Glasses+Gloves

TIER II Hazard Codes

Health Acute: Flammable: Pressure: Health Chronic: Reactive:

Responsible Person

Last Name: First Name: Title:
 Work Phone: 24 hr Phone: Mobile/Cell #:

The second page contains the SDS for the product (if available). If there is a file displayed, the “View Image” button should be available to click. Clicking this button will show the SDS for the product from the corresponding manufacturer.

This screenshot shows the 'SDS Image' tab of a software interface. At the top, the 'Product Name' is 'Sulfuric acid', the 'Manufacturer' is 'Acros Organics', and the 'SDS #' is '30006935'. Below this, there are four tabs: 'Product Data', 'SDS Image', 'Chemical Reference Data', and 'Environmental'. The 'SDS Image' tab is active, displaying a table with three columns: 'Language', 'File', and an empty column. The first row shows 'English' and 'EN30006935_1.pdf'. Below the table are three buttons: 'Select File', 'Clear File', and 'View Image'. At the bottom, there is a 'Shipping Info:' label followed by an empty text input field.

The third page contains any available reference data for the product such as melting/boiling points, pH, and molecular weight.

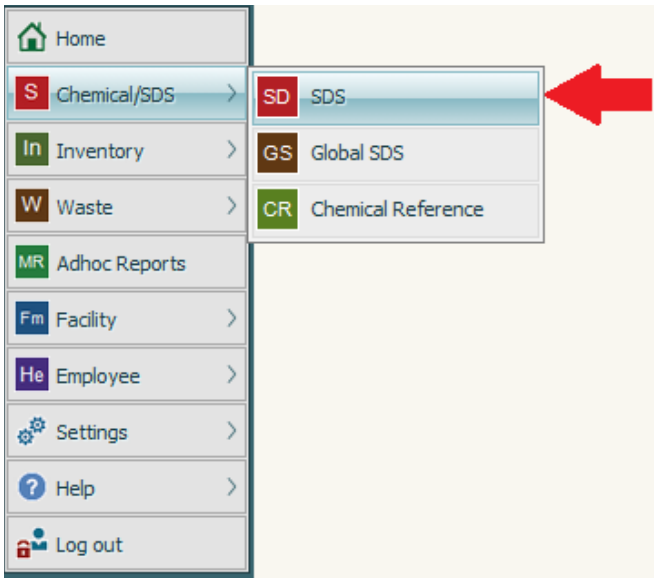
This screenshot shows the 'Chemical Reference Data' tab of the same software interface. The product information at the top remains the same. The 'Chemical Reference Data' tab is active, displaying a grid of input fields for various physical and chemical properties. The left column includes fields for Molecular Weight, Vapor Pressure (1 mmHg @ 146 °C), Boiling Point (554 °F), Melting Point, Flash Point, International Fire Code, TWA, STEL, Water Solubility, Evaporation Rate, Conversion Factor, Storage Requirements, Specific Gravity (LIQ), Density (1.84 Pounds/Gallons), pH (1.1N aq.sol), Classification, Curies, STCC, OSHA Hazardous, NIOSH Page, VOC Content, and Sulfur Content. The right column includes fields for Peroxide Forming, Vapor Density, Boiling Point Details (290 °C / 554 °F), Melting Point Details (10 °C / 50 °F), Flash Point Details, Uniform Fire Code (C,WR2), Upper and Lower Explosion Limits, Auto Ignite Temperature, Critical Temperature, Pesticide ID, Storage Temperature and Pressure, Special Handling Equipment, Special Fire Fighting Media, EINECS, Shock Sensitive, Precious Metal, ICSC Page, CERS Chemical Library ID, US EPA SRS, VOC %, and Energy Content. A 'View' button is located next to the ICSC Page field.

The fourth page contains any environmental data for the product. This data primarily consists of GHS information as well as DOT information for transportation of the material.

Product Name: Sulfuric acid		Manufacturer: Acros Organics		SDS #: 30006935			
Product Data		SDS Image		Chemical Reference Data		Environmental	
GHS							
Hazard Codes: H314,H335		Category: 1A,3					
Precautionary Codes: P280,P271,P310,P363,P405		Signal Word: DANGER					
Hazard Class: Skin corrosion/irritation,Specific target organ toxicity, single exposure; Respiratory tract irritation,							
Hazard Statements: Causes severe skin burns and eye damage,May cause respiratory irritation,		Precautionary Statements: Immediately call a POISON CENTER or doctor/physician,Store locked up,Use only outdoors or in a well-ventilated area,Wash contaminated clothing before reuse,Wear protective gloves/protective clothing/eye protection/face protection,					
Other Information:		Pictogram: GHS05,GHS07					
Transport Pictograms:							
US							
Hazard Class US.: 8		RCRA:		DOT/UN#: 1830			
Hazard Label US.:		RTECS:		RQ:			
Formula:		ERG:		RQ Trigger:			
Toxic Catalogue:		Green: <input type="checkbox"/>		Marine Pollutant: <input type="checkbox"/>			
UHC:		Packing Group: II		Waste Profile:		Safer Choice: <input checked="" type="checkbox"/>	
CA							
Hazard Class CA.:							
Hazard Label CA.:							
T.D.G. Labels:							
Consumer Labels:							
EU							
Hazard Class EU.:							
Hazard Label EU.:							
Risk Phrases:							
Safety Phrases:							
UFI:							
NZ							
Hazard Class NZ:							

2. SDS

The SDS library is a catalog of SDS records available to use for chemical inventory. This catalog is a combination of records downloaded from the Global SDS library and manually created SDS records. The SDS library can be accessed from the Home page by hovering over “Chemical/SDS” on the left side of the screen and clicking “SDS”.



The SDS library search form only has three available search options: name, manufacturer, and CAS number. In this example, I will search for all records that have the exact name 'sulfuric acid'.

A screenshot of a search form titled 'Search'. It has three rows of input fields: 'Name', 'Manufacturer', and 'CAS'. Each row has a dropdown menu set to 'Equals' and a search icon. The 'Name' field contains the text 'sulfuric acid'. A 'Search' button is located at the bottom right of the form.



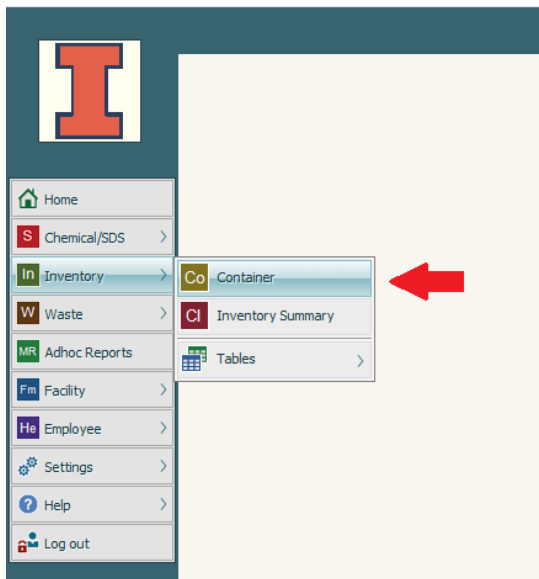
8 records

Product Name	Manufacturer	SDS#	Revision Date	Entry Date	Inventory	SDS	
SULFURIC ACID	Generic	815749		7/1/2019	<input checked="" type="checkbox"/>		>
SULFURIC ACID	Fisher Scientific	816997		7/1/2019	<input checked="" type="checkbox"/>	SDS	>
SULFURIC ACID	Mallinckrodt Baker Inc	817454		7/1/2019	<input checked="" type="checkbox"/>		>
SULFURIC ACID	GFS Chemicals	819259		7/1/2019	<input checked="" type="checkbox"/>	SDS	>
SULFURIC ACID	J.T. Baker	819778		7/1/2019	<input checked="" type="checkbox"/>		>
SULFURIC ACID	Macron	820010		7/1/2019	<input checked="" type="checkbox"/>		>
Sulfuric acid	SIGMA ALDRICH	837217	6/2/2016	9/16/2019	<input checked="" type="checkbox"/>	SDS	>
SULFURIC ACID	Ward's Science	838089		7/31/2020	<input checked="" type="checkbox"/>	SDS	>

As you can see from the results, not every SDS record in the system has a corresponding SDS document attached to it. Those that do have the gray SDS button in the corresponding column. Those that don't have a SDS document available are typically either older containers from vendors no longer available or for containers where no vendor information is available. The results also show whether or not containers exist in the inventory system that are attached to each SDS record.

3. Container

The Container module is where you will search for containers within the chemical inventory as well as manage your inventory (add, remove, edit, etc.). Inventory management is addressed in other training documents so I will focus on the search functionality. The Container module can be accessed from the Home page by hovering over "Inventory" on the left side of the screen and clicking "Container".



The default screen you are brought to is the container search screen. Here's a description of what each of the fields means and how to fill them out:

- Barcode: Each container will have a barcode ID assigned to it. The barcode ID can be found on the container label.
- Material Name: The material name will either be the specific chemical name or the product name if it is a mixture of chemicals.
- Manufacturer: The company that manufactured the material
- CAS: The CAS number of the material (if available)
- Building and Room: The building and room where the container is stored
- Location: The location path that designates where a container is stored. Since the EMS system is shared between chemical inventory and waste pickups, there are locations in the system for both operations. Chemical inventory locations will all be in the format 'Building Code-Room Number-Location Description'. The building code is the 4-digit number assigned to every campus building by F&S. A list of these codes can be found [here](#). The location description is a user-defined description of the storage area. Examples of this are cabinet, refrigerator, freezer, and bench. The full location path for a freezer in Noyes Lab 250 would be '0012-250-Freezer' since the building code for Noyes is 0012.
- PI/Area Name: This will be the first and last name of the supervising PI if it is a research space or the given inventory system name if the area is a research support/service area or teaching lab.
- Date Added: This is the date that the container was added to the system
- Container Quantity: This is the current quantity of material left in the container. This field will always auto-populate with a '0' so a default search will look for non-empty containers.
- Emp. Number: This is the employee number assigned to you by the EMS system. This number has no correlation to your UIN or other university-related employee information. This number is always auto-populated when starting a new search. When this number is left in the search form, only the containers stored in locations that are a part of your assigned area(s) will be displayed. If you want to broaden the scope of your search to all viewable chemicals, delete the number before submitting the search.

Search			
Barcode:	Equals	<input type="text"/>	
Material Name:	Equals	<input type="text"/>	<input type="button" value="🔍"/>
Manufacturer:	Equals	<input type="text"/>	<input type="button" value="🔍"/>
CAS:	Equals	<input type="text"/>	<input type="button" value="🔍"/>
Building:	Equals	<input type="text"/>	<input type="button" value="🔍"/>
Room:	Equals	<input type="text"/>	
Location:	Equals	<input type="text"/>	<input type="button" value="🔍"/>
PI/Area Name:	Equals	<input type="text"/>	
Date Added:	Equals	<input type="text"/>	<input type="text"/>
Container Quantity:	Greater than	<input type="text" value="0"/>	<input type="text"/>
Emp. Number (Can Edit):	Equals	<input type="text"/>	