



SFS Chemical Safety, Inc.
environmental technology consulting

Configuring Chemical Incompatibility Checks

The first thing to note is that *EMS associates incompatibility information with the location, but the checks are performed on the container, not the location.*

So let's say that you have two locations defined, an Acid Cabinet and a Base Cabinet. You intend to store containers of acids in the Acid Cabinet and containers of bases in the Base Cabinet. You want to configure EMS so that a bottle of Hydrochloric Acid cannot be moved from the Acid Cabinet to the Base Cabinet.

What you need to do is to:

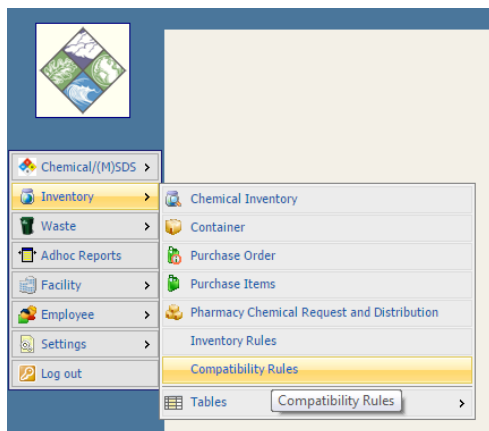
1. Configure Compatibility Rules for a Location

Configure the following two rules for the Acid Cabinet location:

- Acids are incompatible with Bases
- Bases are incompatible with Acids

You will also want to configure the same two rules for the Base Cabinet.

When you configure the rules, you need to specify that they are *classification* rules. Other types of rules are: hazard class, regulation and Uniform Fire Code.



Compatibility Rules

Tools Records Navigate

Area Selection

LOCATION ▼ ACID CABINET

Compatibility Settings

Type: CLASSIFICATION ▼

Category A: ACIDS ... Inverse Condition:

Category B: BASES ...

This is how you define a compatibility rule in EMS. For the Acid Cabinet, Acids are not allowed to be located with Bases. Note the “Inverse Condition” above. In general, it is helpful to check this box. That way, when you create a rule, it will automatically create the inverse condition. Namely, that at this location, Bases are also not allowed to be located with Acids.

It is not uncommon to end up with hundreds or even thousands of rules. One way to make it easier to create and manage these rules is to use the “Clone Rules” function that is in the Action menu:

Clone Compatibility Rules

Type: CLASSIFICATION ▼

Area Type: LOCATION ▼

Source Area: ACID CABINET ...

Destination Area: BASE/CORROSIVES CABINET ...

Apply to all Areas:

Ok Cancel

We use the clone function to create the same set of rules for the Base Cabinet.

Once we create the four compatibility rules needed for this example, we can review them in table form as shown below.

Area	Type	Category A	Category B
Acid Cabinet	CLASSIFICATION	ACIDS	BASES
Acid Cabinet	CLASSIFICATION	BASES	ACIDS
Base/Corrosives Cabinet	CLASSIFICATION	ACIDS	BASES
Base/Corrosives Cabinet	CLASSIFICATION	BASES	ACIDS

We can also select “Print Chart” from the Action menu to see the rules in the form of a chart:

CHEMICAL INCOMPATIBILITIES BY CLASSIFICATION

LOCATION		Acid Cabinet																		PRINT DATE	12/11/2014					
	ACID ANHY S	ACID S	ALCO HOL S	ALDE HYDE	ALKY LENE	AMN ES	AMM ONIA	ARO MATI	BASE S	CAUS TICS	CYAN OHY	ESTE RS	ETHE RS	HALO GENA	HALO GENS	INOR GANI	KETO NES	MON OME	NITRI LES	OLEF INS	ORG ANIC	OXIDI ZER	PETR OLU	PHEN OLS	PHOS PHO	SATU RATE
ACID ANHY		X	X	X	X	X	X		X	X	X					X		X	X							
ACIDS	X		X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X					X
ALCO HOL S	X	X		X	X										X	X		X								
ALDE HYDE	X	X	X		X	X	X		X	X	X				X	X	X				X			X		
ALKY LENE	X	X	X	X		X	X		X	X	X					X		X	X		X			X		

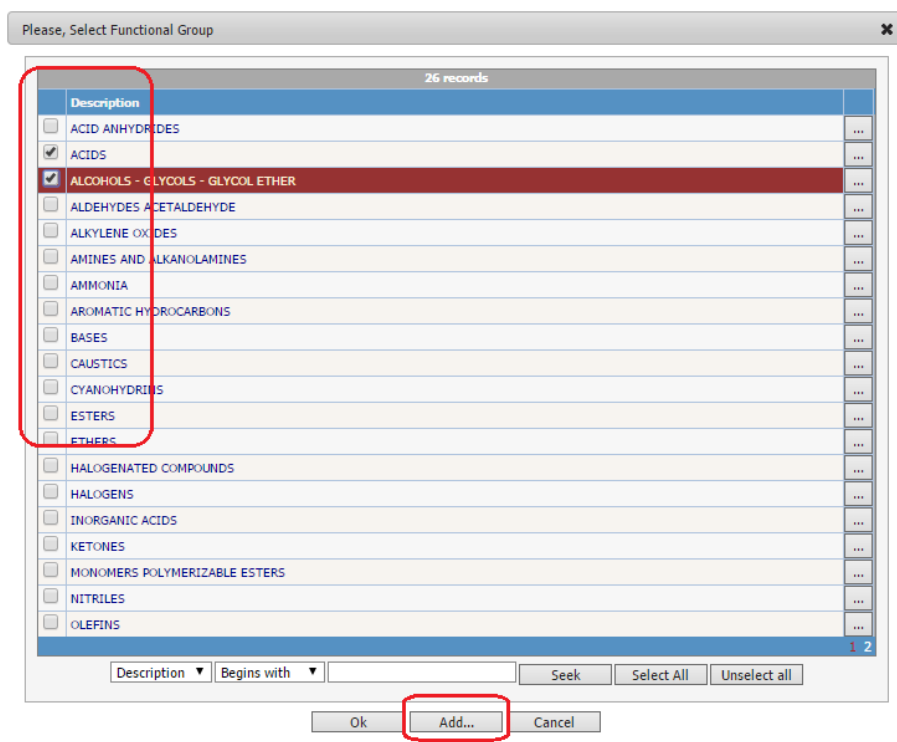
2. Configure the Classification of the Chemicals

Next, you need to identify the classification of the chemical.

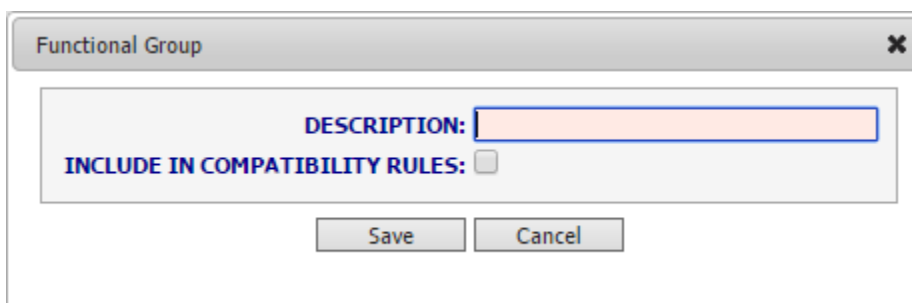
In the MSDS record for Hydrochloric Acid, you enter “acid” in the classification field. To do this, navigate to the MSDS record, click on the Chemical Reference Data tab, and go into “edit” mode.

The screenshot shows a software interface for editing chemical data. The 'Product/MSDS/SDS' tab is active, and the 'CUSTOM FIELDS' section is visible. The 'Prod.Name' is 'HYDROCHLORIC ACID 40%' and the 'Manuf' is 'MALLANKRODT'. The 'Chemical Ref. Data' tab is selected, and the 'Classification' field is highlighted with a red box and contains the text 'ACID'. Other fields like 'Mol. Weight', 'Boiling Point', 'Melting Point', 'TWA', 'STEL', 'Water Sol.', 'Evap. Rate', 'Conv. Factor', 'Storage Req.', 'Specific Gravity (LIQ)', 'Density', 'pH', and 'Flash PT.' are also visible.

Click on the “...” button in the Classification field to display a list of classifications. Check the box next to all that you want to select.



You can add additional classifications by clicking the “add” button:



Once the classifications are associated with the MSDS, they will be associated with all containers that are associated with that MSDS.

3. Test the Functionality

Now that the Incompatibility Rules have been defined for the location AND the classifications have been defined for the chemicals, it is time to test. When you try to change the location of the Hydrochloric Acid from the Acid Cabinet to the Base Cabinet, EMS will process every compatibility rule for the location, checking Hydrochloric Acid against every container in the Base Cabinet.

Container

Location
 Loc./Desc.: ACID CABINET Building: BLV
 Facility: INET SMITH Floor: Room: ETL
 Department: Control Area:

PRODUCT
 Material Name: HYDROCHLORIC ACID, 6.0N
 Manufacturer: INTEGRA Supplier: INTEGRA
 Prod. Ref./Chem. Ref: HYDROCHLORIC ACID CAS: 7647-01-0
 Phys. State: Liquid Pure/Mix/Dilution:
 Part Number:

Post Date: 9/16/2014 Container Type: Barcode: 25216
 No. of Cont.: 1 Pressure: P.O. Number:
 Surplus: Temperature:

Employee Name:
 Employee ID:
 Request Employee ID:
 Location Request:
 Request Date:
 Waste:

Container Quantity:
 Cont. Unit: LITERS LOT:
 Container Size: 1


Container Transfer

Loc./Desc.: BASE/CORROSIVES CABINET Location ID: 819193
 Employee Last: Employee First: Employee #:

Ok Cancel

If there is an incompatibility, EMS will block the container transfer, throwing up an error message that cites the incompatibility rule:

CS-EMS-E

 Container '25216': This chemical violates Inventory Rules.
 -Classification Compatibility Violation: 'ACIDS' is not compatible with 'BASES' (location level).

Ok