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.
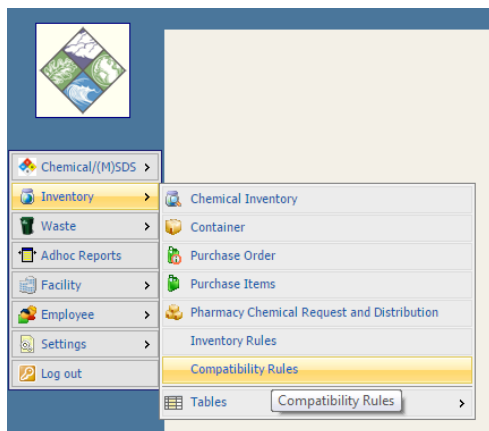
What you need to do is to:

1. **Configure Compatibility Rules for a Location**
   Configure the following two rules for the Acid Cabinet location:
   a. Acids are incompatible with Bases
   b. 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.

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:

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

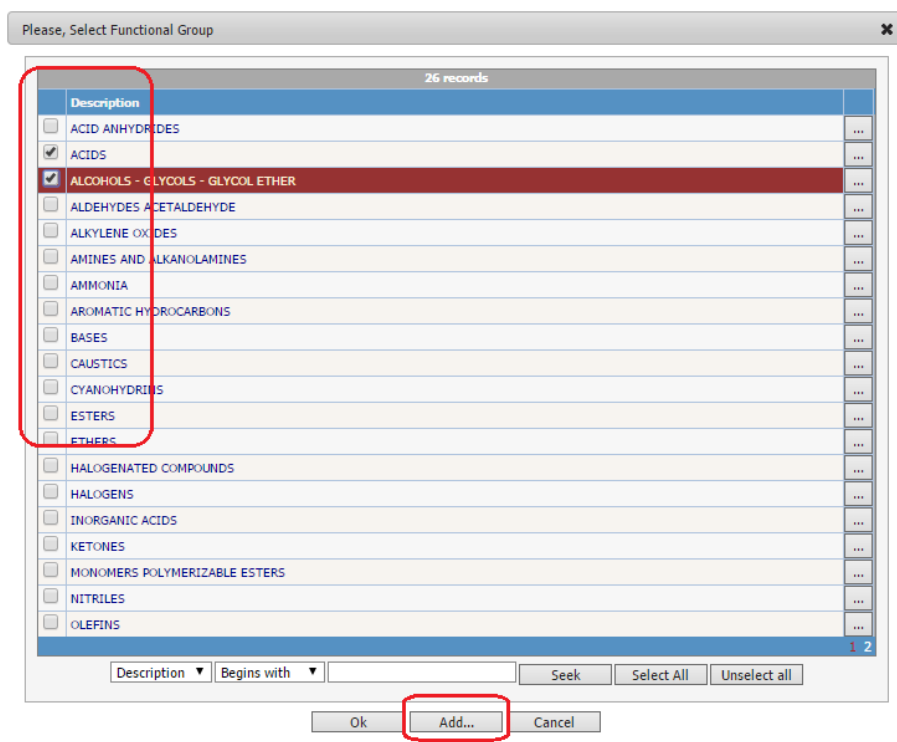| LOCATION | Acid Cabinet | | | | | | | | | | | | | | | | | | | | | | | PRINT DATE | 12/11/2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ACID ANHY | ACID S | ALCO HOLS | ALDE HYDE | ALKY LENE | AMIN ES | AMM ONIA | ARO MATI | BASE S | 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 OLIU | 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 HOLS | 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

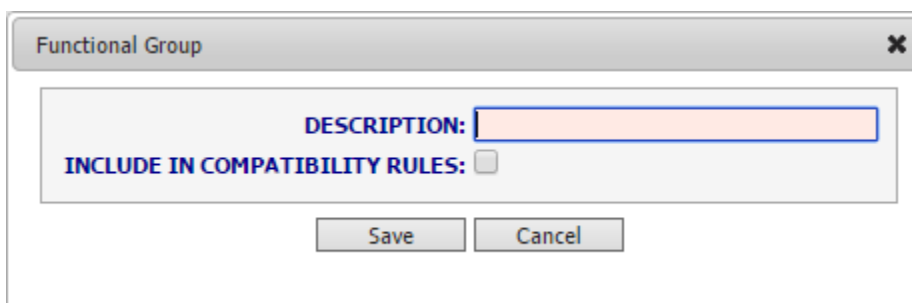Next, you need to identify the classification of the chemical.

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.

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.

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