CHEMATIX™

Chemical Management Software

Waste Management Module

Version 11

CHEMATIX™
Manuals and Guides

The full list of comprehensive step-by-step instructional manuals includes:

CHEMATIX™ User Manual

CHEMATIX™ Environmental Health & Safety User Manual

CHEMATIX™ Store Management Manual

CHEMATIX™ Super User / System Administrator Manual

CHEMATIX™ Glossary

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Preface

CHEMATIX™ is an inventory tracking system that uses barcodes as a unique identifier to track chemical containers.

Once a chemical container and its Chemical Abstract Database (CAD) are associated, unique barcodes for each chemical container are generated, printed, and affixed to each container. In addition, each barcoded container is assigned a specific location. These barcoded chemical containers are utilized as the inventory system's method of tracking the container and its contents from cradle to grave. This permits users to track, inventory, and monitor the status of chemicals and their containers. Users only have access to inventory chemicals in their locations, with the exception of Environmental Health & Safety personnel, who have access to all locations. Barcodes are printed on adhesive labels that come in various sizes to accommodate different sizes of containers.

This Waste Management Module enables a CHEMATIX™ user who has successfully completed HMTF (Hazardous Materials Treatment Training) to perform waste management duties that include, but are not limited to, creating Waste Cards and submitting Pick-Up Worksheets.

Waste materials are collected in waste containers in a lab. All such containers have their own unique identifying label, attached to each waste container, called a Waste Card. A Waste Card describes the chemical constituents of the waste in the container as well as other required information including, but not limited to, the waste container's barcode, creator, place of origin, and CAS#. The Waste Card is then added to a Pickup Worksheet, which is a notification for Hazardous Material personnel to collect the waste from a lab and to transport such wastes to treatment or disposal facilities.

The proper handling of reaction by-products; surplus and waste chemicals; and contaminated materials is an important part of laboratory safety procedures. As a result, this Waste Management Module is a critical component of environmental health and safety and assists in the assurance that your institution is in regulatory compliance with all local, regional, state, and federal governing authorities. Types of chemical waste generated include, but are not limited to, unwanted laboratory reagent chemicals; waste mixtures generated from laboratory research and education; glassware and trash contaminated with chemicals; chemical spill clean-up debris; oils; paints; maintenance cleaners; gas containers, and pesticides. For the proper procedures for handling and disposing of chemical waste, contact your institution's Department of Environmental Health & Safety.

(The availability of functionalities within CHEMATIX™ is optional and is determined by your institution. Not all functions will be available to all users.)

Printer Considerations

Before generating and printing barcodes or Waste Cards, it is advised that you adjust your printer settings for optimum results. To correctly configure your printer, set the resolution to at least 600 dpi. Depending on your printer, this is usually "Best" or "Normal". This quality is a better option than "Draft" or a lower resolution.

NOTE:

- A PDF program, like Adobe Acrobat Reader, is required to generate and print barcodes.

- You must enable popups to run CHEMATIX™.

To enter the **Waste Management Module**, click the 

button at the top of the CHEMATIX™ screen:

1 Introduction

Welcome to **CHEMATIX™**, the first full-spectrum chemical management solution available in North America, with the full-featured capability of tracking chemicals from point of entry as inventory to point of exit as waste, as well as every point in between, with tremendous detail. With powerful modules to facilitate Inventory Management, Waste Management, Resource Management, Financial Management and Web Procurement, **CHEMATIX™** is at the cutting edge of research management by providing the most rigorous and robust environment in which to track controlled substances and maintain compliance with all governmental regulations and mandates.

This comprehensive, web-based solution is comprised of five management modules:

Inventory Management

The essential management module, which allows **CHEMATIX™** to store detailed information about every substance in the system, providing the foundation for regulatory compliance, environmental safety, and inventory, research and budget control is built. All substances are tracked via scanning (or manual entry) of barcodes attached to each item upon acceptance into the system at point of entry. Storage locations, including warehouses, laboratories, and specific shelves, are also assigned barcodes and associated with a chemical inventory. A complete history of each bar coded item is maintained from point of entry to elimination as waste. The big picture view of chemical tracking and the ability to manage various aspects of warehouse and laboratory inventory of both chemical and non-chemical items is also facilitated. Detailed inventory item profiles of all tracked materials are uploaded to the system upon receipt of order utilizing data captured during the procurement process. A multitude of user-configurable reports and views can be generated to view specific location inventories, hazardous chemical counts, historical profiles, etc.

Web Procurement

The Web Procurement module empowers researchers to procure scientific chemicals and supplies via the web, from virtually any web-enabled device anywhere in the world. Users have access to instant purchasing, can search inventories and online catalogues, order supplies, manage existing orders and generate a variety of reports. Hazardous material purchases can be monitored and controlled, along with the strict regulation of possession limits and registration/approval processes for select agents within this module.

Waste Management

The Waste Management module enables laboratory and regulatory personnel to manage all aspects of chemical disposal. All waste and its corresponding status can be tracked in detail at any point in the system. This module is a critical component of environmental health and safety, assisting in the assurance that each institution is in regulatory compliance with all local, regional, state and federal governing authorities.

Fiscal Management

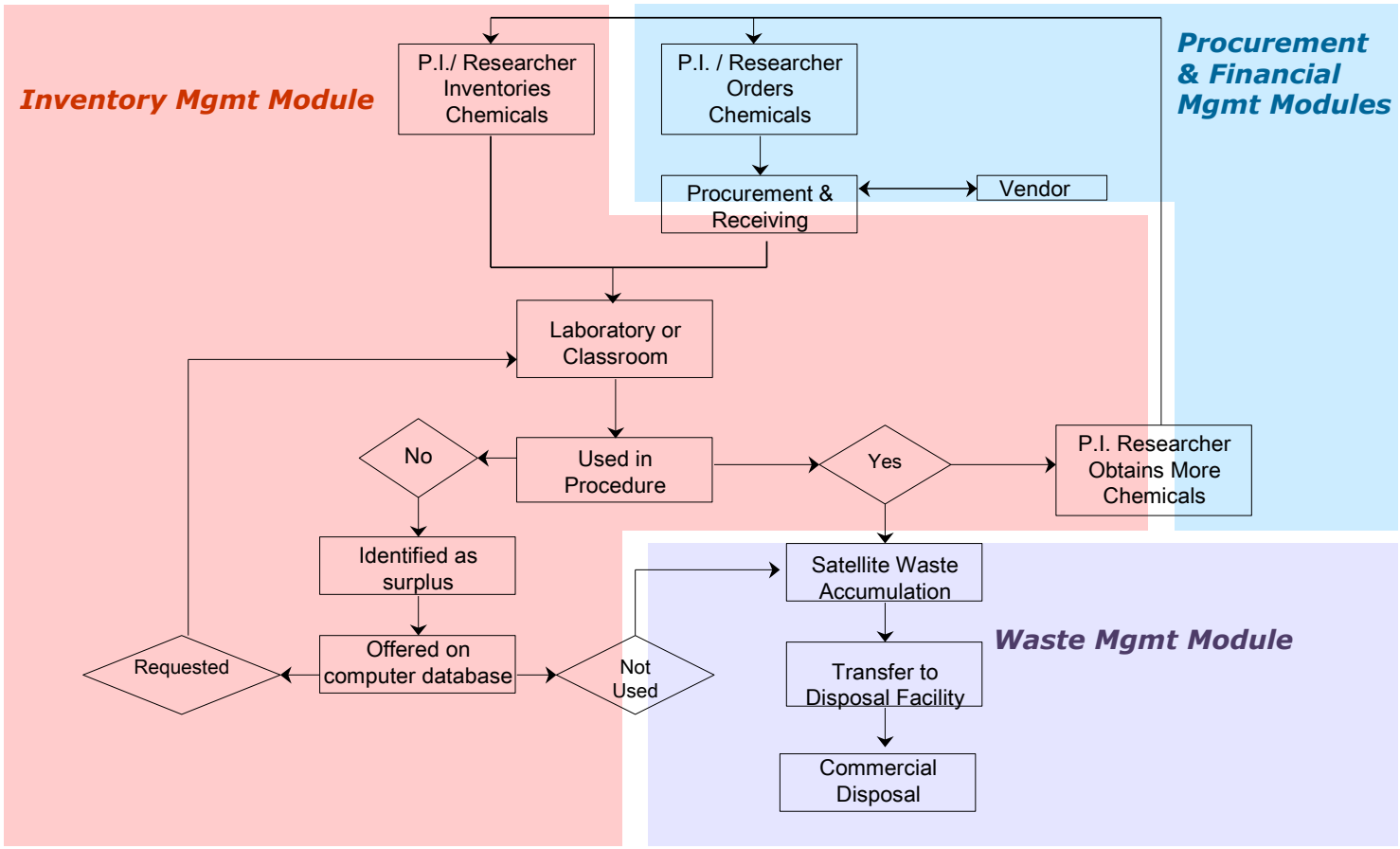
The Financial Management module provides access to a complete accounting system, capable, in part, of generating invoices, tracking payment, tracking account numbers against each purchase, accommodating credit card purchases, tracking and charging applicable sales tax, generating monthly billing for all customer orders and allowing for issuance of credits. Interfacing with existing accounting systems, this module provides account administrators with the ability to fully manage all fiscal responsibilities.

Resource Management

Resource Management provides and restricts access to all levels of the system. User profiles are created for varying levels of access including individual users, departments, vendors and customers. User administration is constructed hierarchically to ensure maximum system security.

1.1 CHEMATIX™ Process Flow Diagram

The following is a diagram displaying the process flow of chemicals within the system. The shaded areas represent the different modules, displaying the processes encompassed by each. Note that the diagram is intended to provide a general overview; comprehensive complexity or full system feature detail is not intended.



2 Generate Reports for Hazards in My Area

This functionality permits PI's and Lab users to generate lists of hazardous chemicals in their labs. Hazards are defined by your institution and are marked as such in CAD by your Department of Environmental Health & Safety. This functionality is available to all PI's and Lab Users.

1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to the Generate Hazards in My Area Report link, and click on it. You will now be transferred to page [WM476]:

This list of chemical hazards is a configurable option defined by your institution and can be added to, changed, or modified by a CHEMATIX™ System Administrator. If you have any questions about Hazards in Your Area, contact your Environmental Health and Safety personnel. The following is an explanation of some of the monitored hazards:

PEC (Potentially Explosive Chemicals). Most chemicals that are used in research and teaching laboratories are stable and non-explosive at the time of purchase. Over time, some chemicals can oxidize, become contaminated, dry out, or otherwise destabilize to become Potentially Explosive Chemicals (for example, isopropyl ether, sodium amide, and picric acid). PEC's are particularly dangerous because they may explode if they are subjected to heat, light, friction, or mechanical shock.

Peroxide Formers (peroxidizable materials) can form peroxides in storage, generally when in contact with the air. These peroxides present their most serious risk when the peroxide-contaminated material is heated or distilled, but they may also be sensitive to mechanical shock. Many of these are time sensitive.

Fetal Agents are those chemical substances that can affect the health and well-being of the fetus.

Teratogens are chemicals that may cause non-inheritable genetic mutations or malformations in the developing fetus (= birth defects). Teratogens may halt the pregnancy outright.

Mutagens are agents that change the hereditary, genetic material that is a part of every living cell. Such mutations are probably an early step in the sequence of events that ultimately lead to the development of cancer.

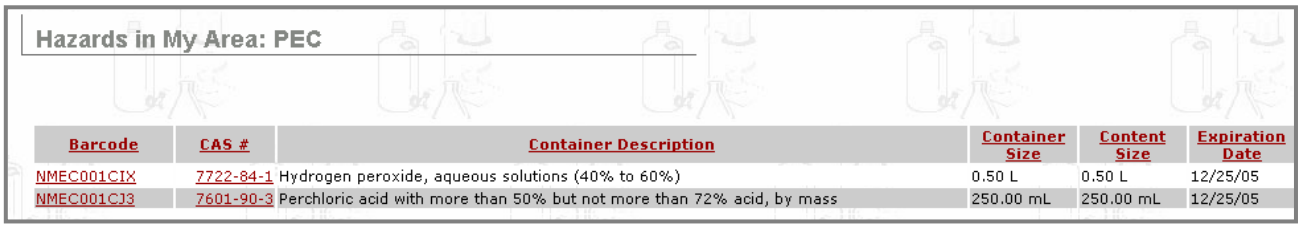
Controlled substances are drugs or chemical substances whose possession and use are regulated under the Controlled Substances Act.

Bioagents (**biological agents**) are viral, bacterial, fungal, or parasitic substances that cause disease and/or illness.

Flammable 1 and **Flammable 2** are institution specific. Contact your Department of Environmental Health & Safety for specifics.

The same procedures are used to generate reports of all hazardous chemicals in your labs. In the following example, the PEC link was clicked.

1. A list of all PEC chemicals in your lab locations is generated on page [WM478], for example:



Hazards in My Area: PEC

Barcode	CAS #	Container Description	Container Size	Content Size	Expiration Date
NMEC001CIX	7722-84-1	Hydrogen peroxide, aqueous solutions (40% to 60%)	0.50 L	0.50 L	12/25/05
NMEC001CJ3	7601-90-3	Perchloric acid with more than 50% but not more than 72% acid, by mass	250.00 mL	250.00 mL	12/25/05

Click the chemical's Barcode to view this container's chemical details on page [SC430].

Scroll down to the bottom of page [SC430], and click Print to print this container's chemical details.

2. Click the chemical's CAS # to view CAD information.

3. To print the list of hazards generated on page [WM478], click File on your browser. On the drop-down menu, scroll down to Print... and click. You can now print through your browser.

4. When finished, check the CHEMATIX™ menu bar at the top of the page for more functionalities.

3 Register for HMTF Training

This functionality permits all CHEMATIX™ users to register for HMTF (Hazardous Materials Treatment Facility) training. Users who have successfully completed HMTF training are usually the only individuals authorized to perform waste management duties including, but not limited to, creating Waste Cards and submitting Pick-Up Worksheets. This training option is available based on institutional business rules. Please contact your CHEMATIX™ System Administrator for more details.

1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

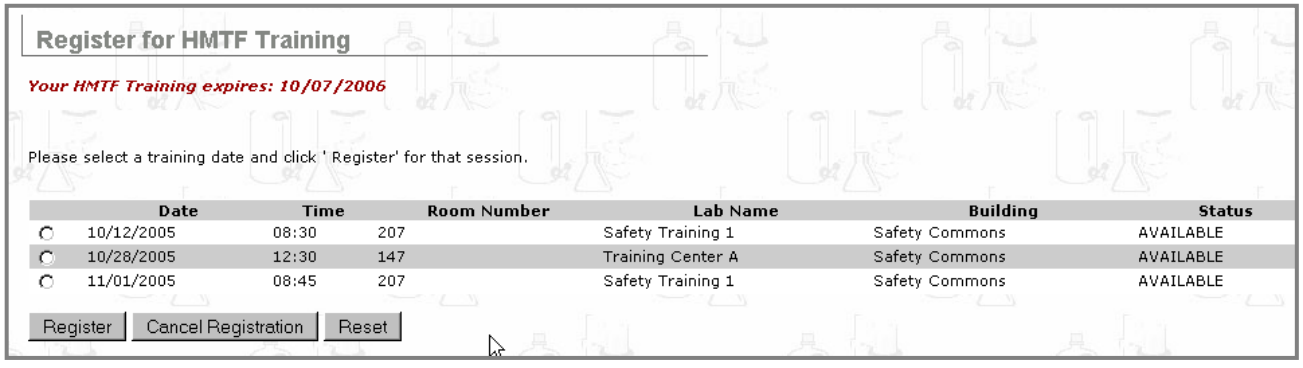
3. The registration for HMTF training is a configurable option that varies based on your institution. The following outlines some possible ways in which you may complete your registration:

Option 1: **Register for training via Chematix.**
Selecting the link Register for HMTF Training will take you to page [WM181]. Follow Step 4. below in this user manual to continue.

Option 2: **Register for training online via your university's website**
Selecting the Hazardous Waste Training link will take you to your university's website where you can sign up for the training.

Option 3: **Use SIVCO's Training Record Management System which can be integrated with CHEMATIX™.**
This application will be available in the near future.

4. You will now be transferred to page [WM181]:



5. Click on a radio button to select an appropriate HMTF training date, time, and site.

Click Register to register for your selected HMTF training date and time.

Click Reset to cancel your selection of radio button.

6. To cancel your registration for HMTF training, click on the radio button  to select the HMTF training date and time that you wish to delete. Thereafter, click Cancel Registration. Your registration for HMTF training at that date and time is now cancelled.

4 Manage Laboratory Waste

These functionalities permit users to perform waste management duties within CHEMATIX™, including but not limited to, creating Waste Cards and submitting Pick-Up Worksheets. Based on institutional business rules, some institutions may require hazardous waste training before these functionalities can be used. Please contact your CHEMATIX™ System Administrator for more details. Also, please contact your institution's Department of Environmental Health & Safety for the proper procedures for handling and disposing of chemical waste.

1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution and your level or permission).

3. Scroll down to

There are five options under this heading:

Option 1: **4.1 Create Waste Card** permits PI's and Lab Users to create Waste Cards. Waste materials are collected in waste containers in a lab. A Waste Card is an identifying label attached to a waste container. Once generated, a Waste Card is then added to a Pickup Worksheet. Hazardous Material personnel then collect the waste from the labs and transport such wastes to treatment or disposal facilities. This functionality also permits users to create Waste Card Templates of chemical mixtures.

Option 2: **4.2 Edit Waste Card** permits PI's and Lab Users to view, modify, and print previously generated Waste Cards.

Option 3: **4.3 Waste Card Hotlist** The Waste Card Hotlist is a list of Waste Card Templates. Templates provide a shortcut to create new Waste Cards. If a template is saved to the Hotlist, the next time a user needs to create a similar Waste Card, he or she can select a template from the Hotlist and create a new Waste Card based on information in the template. This option also permits users to create a new Waste Card from a Waste Card Template, to modify a Waste Card name, and to remove a Hotlist entry.

Option 4: **4.4 Create Pickup Worksheet** permits users to create Pickup Worksheets. A Pickup Worksheet notifies Hazardous Material personnel that there are wastes that they are required to collect and transport to treatment or disposal facilities. A Pickup Worksheet is created after the waste chemical container is ready and after a Waste Card for that waste chemical container is generated, printed, and affixed to the waste container.

Option 5: **4.5 List Worksheets Submitted for Pickup** permits users to list and view the Pickup Worksheets submitted for pickup.

4.1 Create Waste Card

This function permits users to create Waste Cards. A Waste Card is a unique identifying label attached to a waste container. A Waste Card describes the chemical constituents of the waste in the container as well as other required information including, but not limited to, the waste container's barcode, creator, place of origin, and CAS#. The Waste Card is then added to a Pickup Worksheet, which is a notification for Hazardous Material personnel to collect the waste from the labs and to transport such wastes to treatment or disposal facilities.

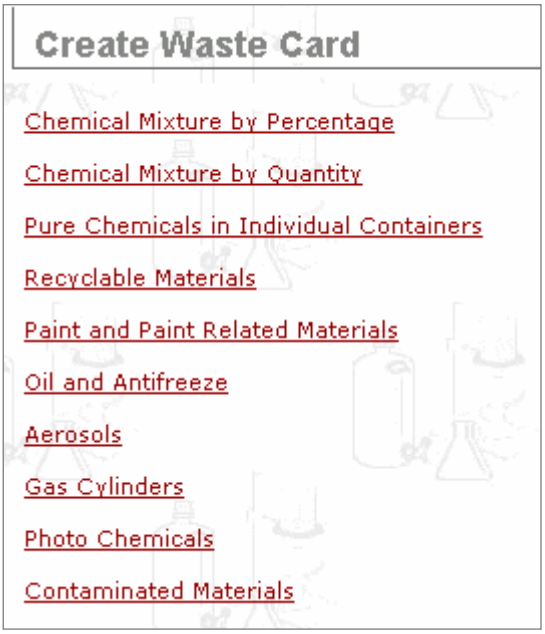
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution and level of permission).

3. Scroll down to

4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



This list of functionalities to generate Waste Cards is determined by your institution. The list can be specialized for your institution's needs. Contact your CHEMATIX™ System Administrator for more information.

On this example page, there are nine choices:

4.1.1 Chemical Mixture Percentage

This choice creates a waste chemical mixture whose constituents are calculated by percentage.

4.1.2 Chemical Mixture by Quantity

This choice creates a waste chemical mixture whose constituents are calculated by quantity (that is, by L, mL, g, kg, fl oz, gal, lb, etc.).

4.1.3 Pure Chemicals in Individual Containers

This choice creates individual waste containers whose waste chemical is pure (= unmixed with any other chemical). Multiple waste containers containing pure chemicals can be created at the same time. This is typically used for chemicals in their original waste containers.

4.1.4 Recyclable Materials

This choice is for recyclable materials, including, but not limited to, ink cartridges, fluorescent light tubes, and batteries.

4.1.5 Paint and Paint Related Materials

This choice is for paint and paint related materials, including, but not limited to, paints, stains, varnish, shellac, thinners, paint removers, and adhesives.

4.1.6 Oil and Antifreeze

This choice is for oils and antifreeze.

4.1.7. Aerosols (Spray Cans)

This choice is for, but not limited to, flammable, corrosive, and poisonous aerosols.

4.1.8 Gas Cylinders

This choice is for liquefied, non-liquefied, and dissolved compressed gases stored in non-reusable cylinders.

4.1.9 Photo Chemicals

This choice is for chemicals used by photo labs including, but not limited to, fixers and developers.

4.1.10 Contaminated Materials

This choice is for materials that have been contaminated.

4.1.1 Chemical Mixture by Percentage

This choice creates a Waste Card for a waste chemical mixture whose constituents are calculated by percentage.

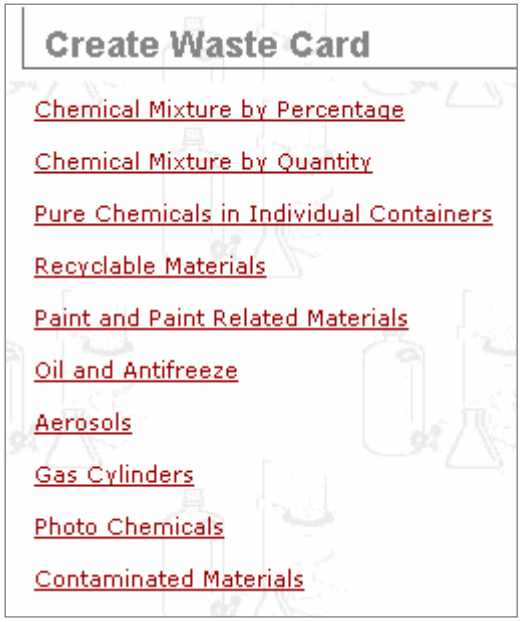
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

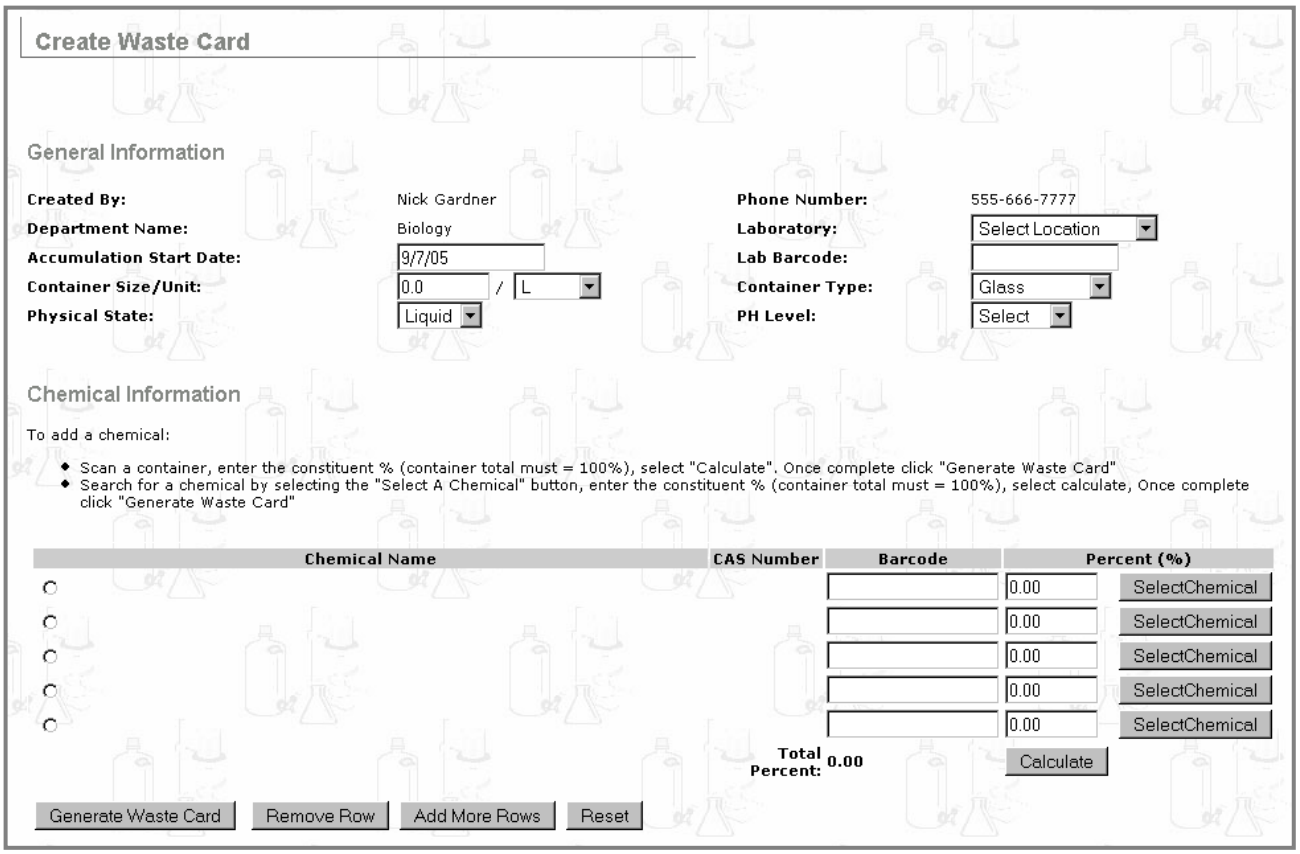
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Chemical Mixture by Percentage .

7. You will now be transferred to page [WM110]:



8. Select the **Accumulation Start Date:**, **Laboratory:**, **Container Size/Unit:**, **Container Type:**, **Physical State:**, and the **PH Level:**.

There are two methods to select chemicals (availability is optional and determined by your institution).

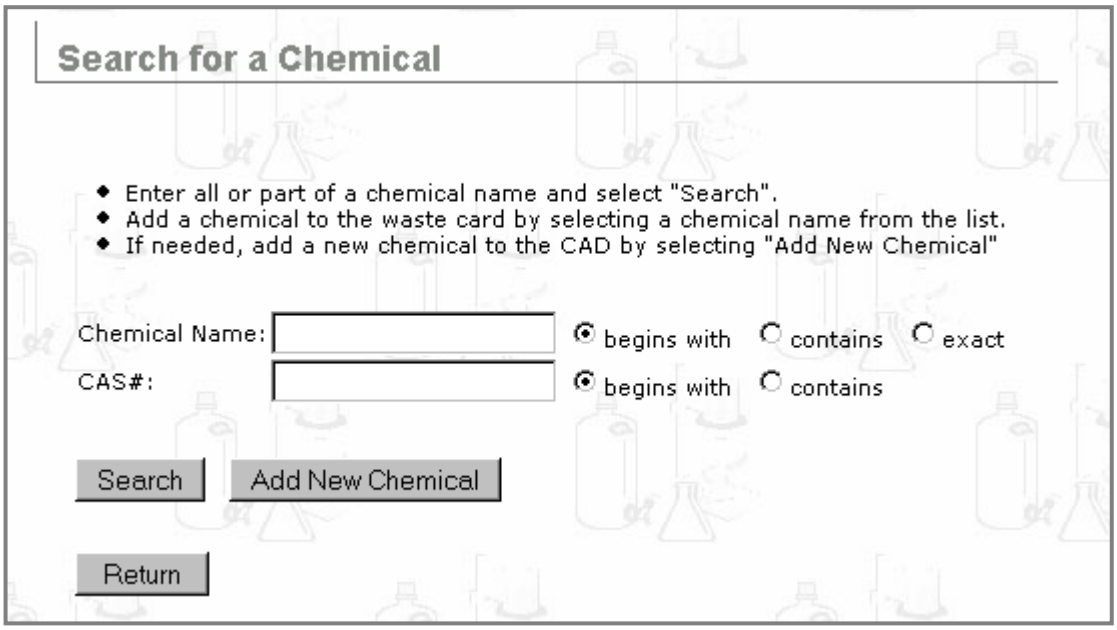
1. Enter the barcode of the chemical container**.**
2. Search for and select a chemical by clicking SelectChemical.

Option 1: Enter the barcode of the chemical container**.**

1. For each chemical, scan or enter the container's barcode.
2. Enter the percentage of this chemical in the mixture.
3. **Go on to Step 9. below.**

Option 2: Search for and select a chemical by clicking SelectChemical.

4. After clicking SelectChemical, you will now be transferred to page [WM111]:



5. Enter the Chemical Name or the CAS# into the appropriate fields.

   NOTE:

   a. When using a chemical name to search CAD, remember that singular and plural forms of certain chemicals may refer to different chemicals.

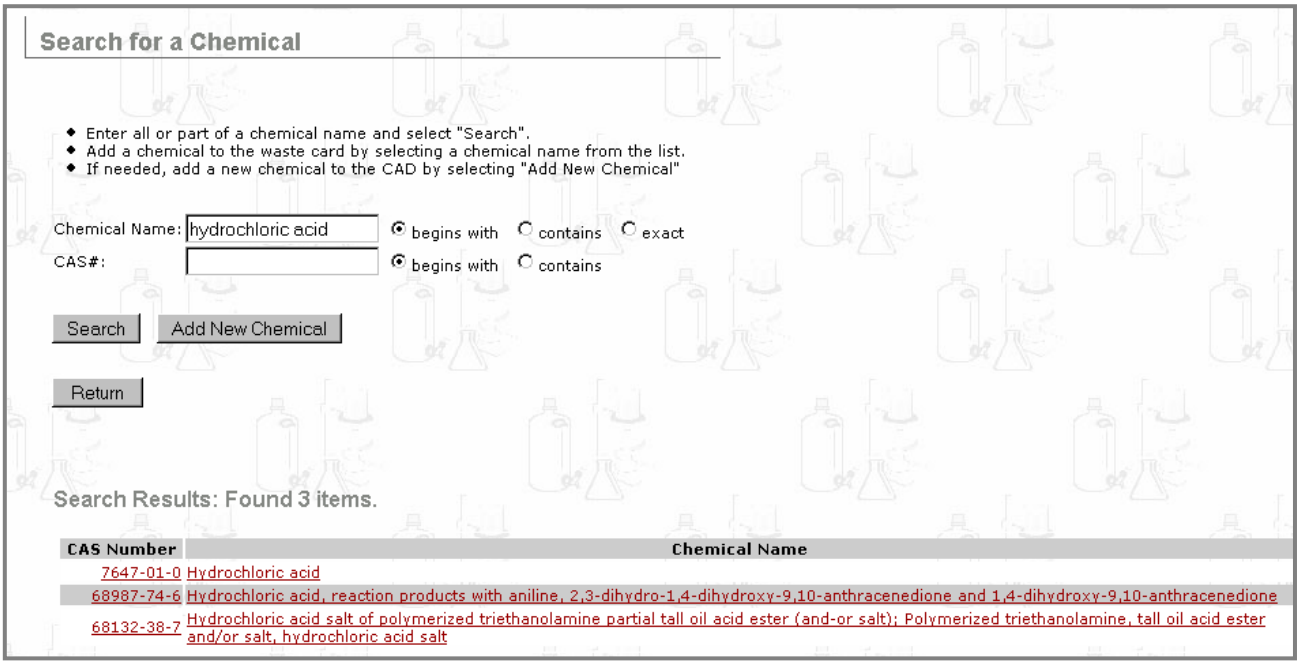
   b. To refine your Chemical Name: or CAS#: search in CAD, click begins with, contains, or exact.

6. Click Return to return to page [WM110] without making any search or selection.

7. Click Search to search for your Chemical Name or CAS# in CAD.

8. **If the chemical name or CAS# IS NOT in CAD**, click Add New Chemical. You will now be transferred to page [IM572] where you can create a new CAD listing. See **Appendix A** for details on how to add a chemical to CAD.

   If the chemical name IS in the CAD database, a generated list will appear at the bottom of page [WM111], as in the following example:

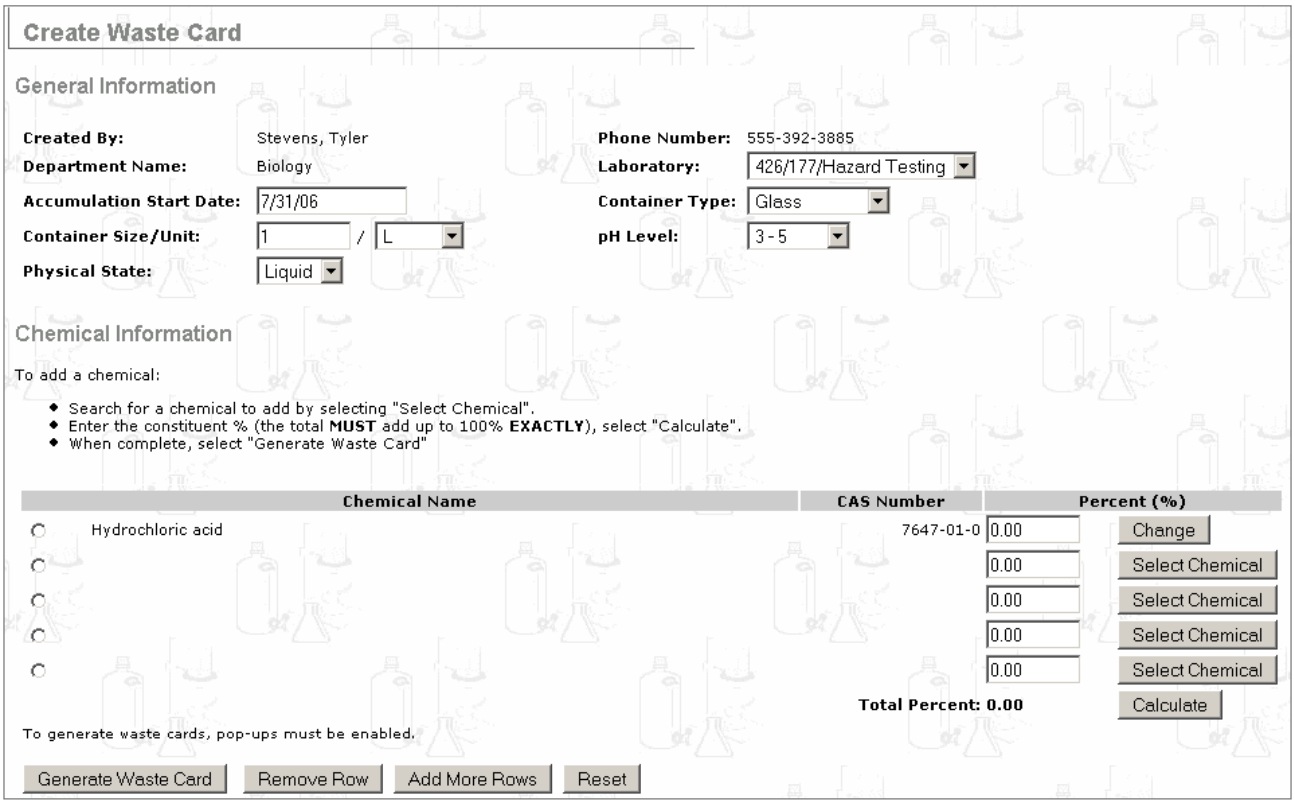


9. Click a **CAS Number** (for example, 7647-01-0) to view page [IM575]:

The Chemical Abstract and MSDS Details include chemical description; health, physical, and fire hazard ratings; physical characteristics; as well as links for additional MSDS information. (MSDS = Material Safety Data Sheet)

10. Click the **Chemical Name** from the generated list (for example, Hydrochloric acid) to add this chemical to your Waste Card.

11. You will now return to page [WM110]:



12. Click Reset to erase all data fields.

    Click Add More Rows to add more rows to the form.

    Click the radio button next to the chemical name. Then, click Remove Row to remove the selected row and delete its contents.

13. Click Calculate if all of the information on this page is correct and if you are ready to generate your Waste Card. CHEMATIX™ now calculates the percentages of chemical in the mixture to ensure that the percentage of chemicals in the mixture totals 100.00%:

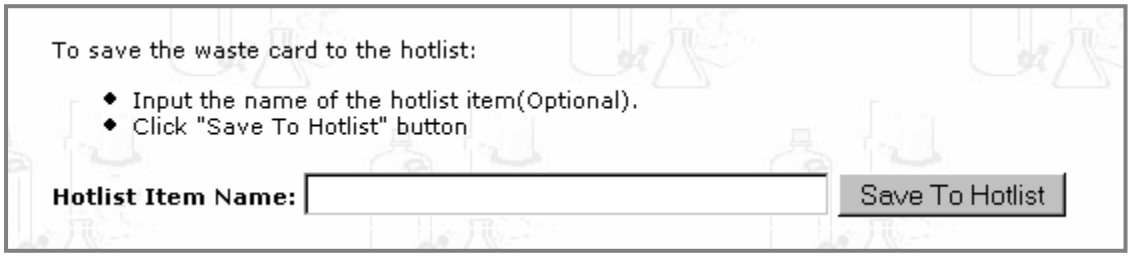
    Total Percent: 100.00

14. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B** for details on how to print a PDF file from Adobe Reader.

15. You have now finished creating your Waste Card.

Create a Waste Card Template for Chemical Mixtures

After your Waste Card (See **4.1.1, Step 12. above**) has been generated and printed, scroll down to the bottom of page [WM116]: Create Waste Card.



You can now create a Waste Card Template for this waste chemical mixture. A Waste Card Template contains all the information necessary to create a Waste Card for chemical mixtures that are declared waste on a regular basis in your lab. Templates provide a shortcut to create new Waste Cards. This function is especially useful if you need to create many Waste Cards containing similar information. The list of Waste Card Templates is called a Hotlist:

1. To access this functionality, enter the name for this chemical mixture into the **Hotlist Item Name** field. This is the **Template Name** field.
2. Click Save To Hotlist.
3. You will now be returned to page [WM402] where the following message will appear:

Access your Hotlist

This functionality will enable you to create a new Waste Card for a chemical mixture from a Waste Card Template in the Hotlist.

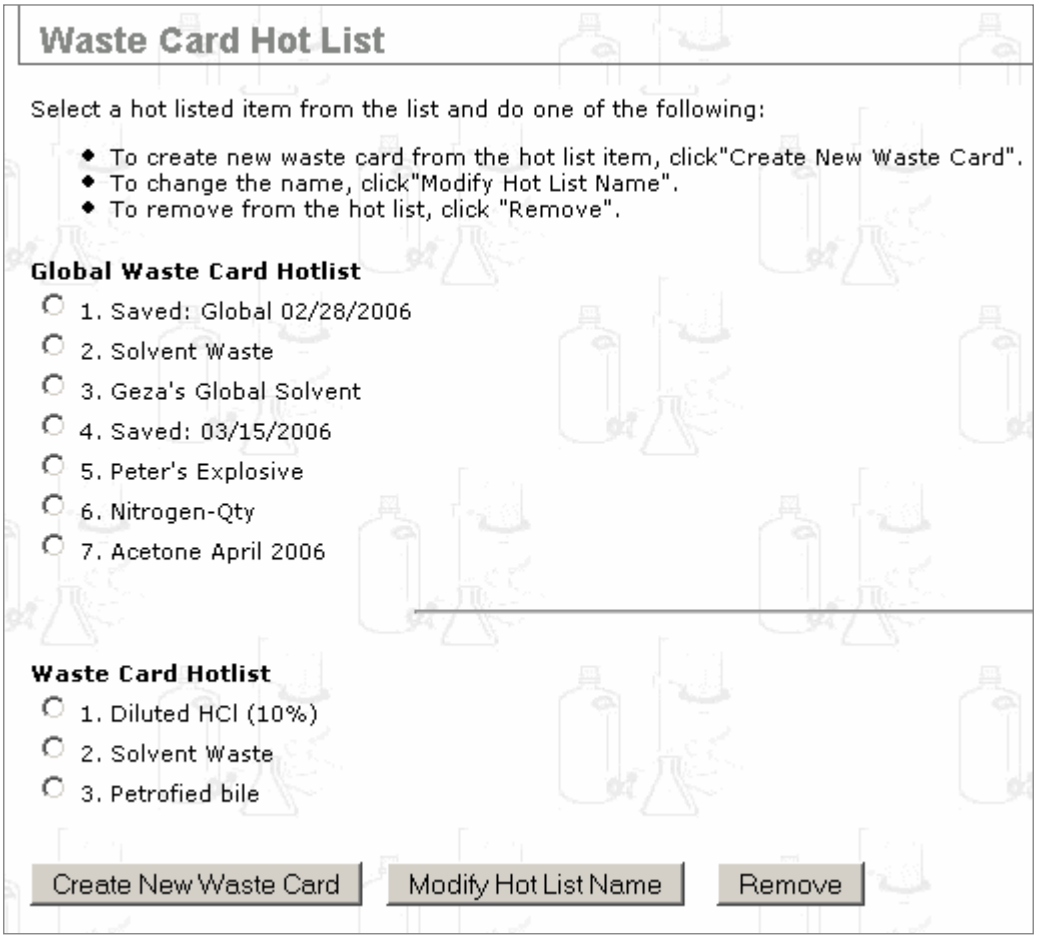
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

4. Click on the link Waste Card Hot List .

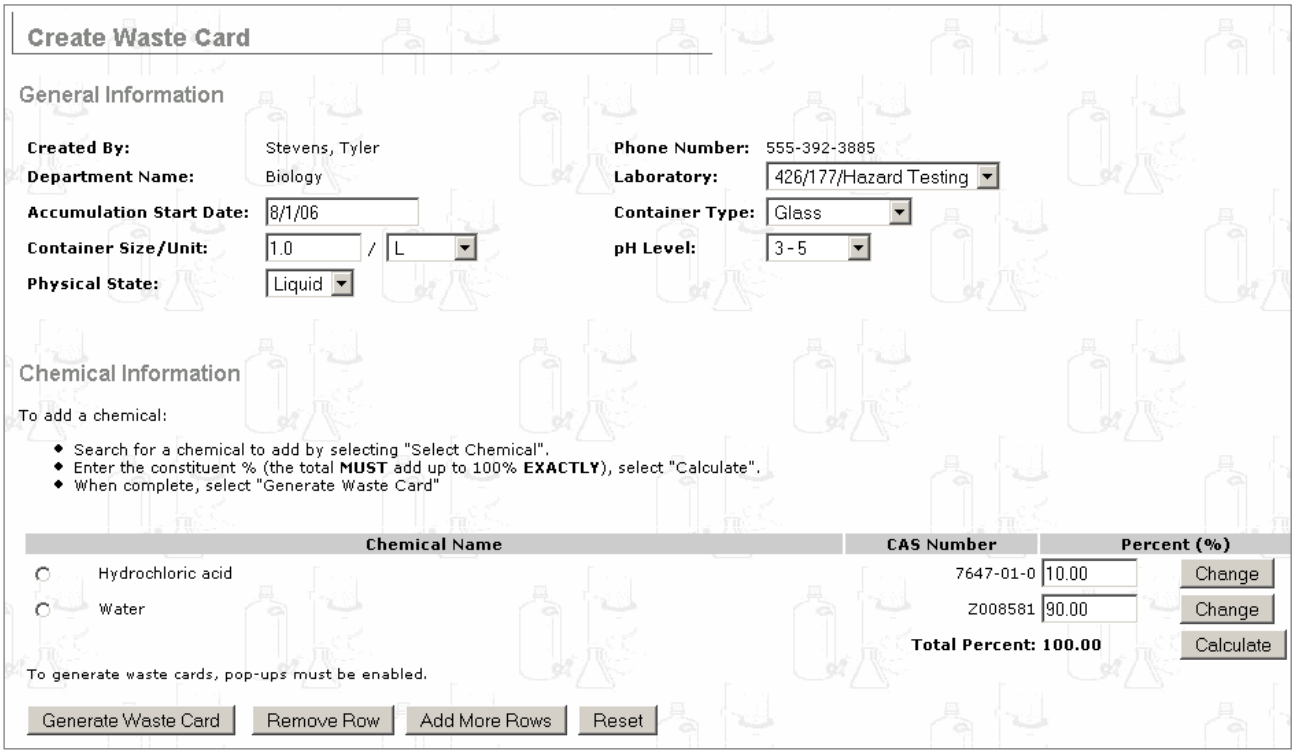
5. You will now be transferred to page [WM118]:



6. Click on the radio button of the chemical for which you wish to generate a Waste Card, for example: 1. Diluted HCl (10%)

7. Click Create New Waste Card.

8. You will now be transferred to page [WM110]:



This is your Waste Card Template. This Template will enable you to easily create a new Waste Card.

1. Change and modify this Waste Card Template as necessary in order to create a new Waste Card.

2. When you are satisfied that the information in the Template is correct, click Generate Waste Card to generate, view, and print your Waste Card in PDF file format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

3. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

4. You have now finished creating a Waste Card from a Template in your Hotlist.

5. For more detailed information on Hotlists (including how to remove a Hotlist card or how to modify a Hotlist name, please refer to **4.3 Waste Card Hotlist** in this **Waste Management Module User Manual**.

4.1.2 Chemical Mixture by Quantity

This choice creates a Waste Card for a waste chemical mixture whose constituents are calculated by quantity (that is, by L, mL, g, kg, fl oz, gal, lb, etc.).

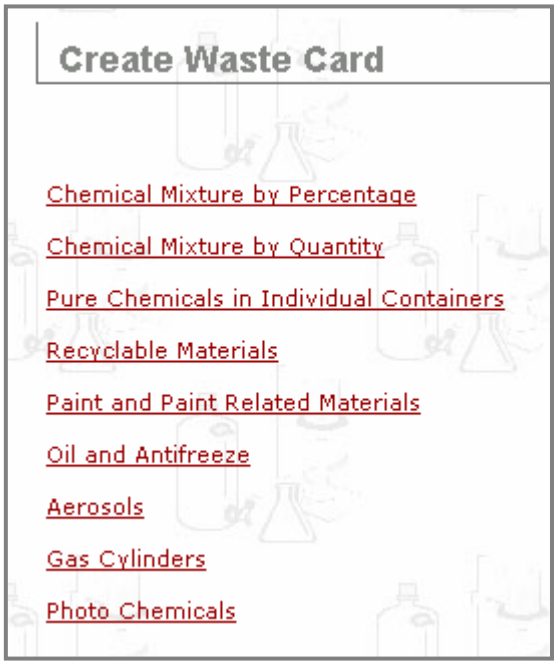
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

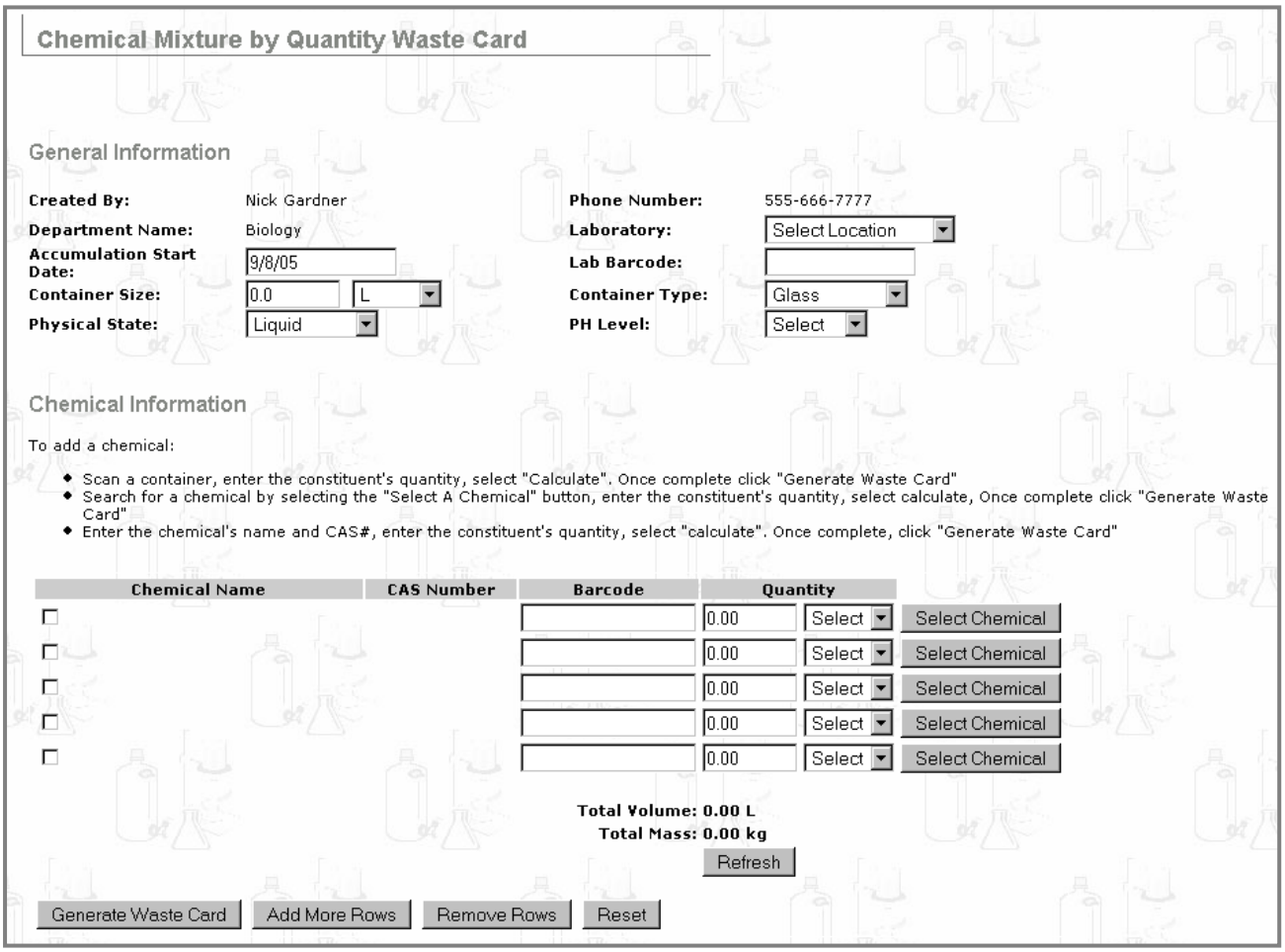
3. Click on the link Create Waste Card .

4. You will now be transferred to page [WM450]:



5. Click Chemical Mixture by Quantity .

6. You will now be transferred to page [WM451]:



7. Select the **Accumulation Start Date:**, **Laboratory:**, **Container Size/Unit:**, **Container Type:**, **Physical State:**, and the **PH Level:**.

There are two methods to select chemicals (availability is optional and determined by your institution).

Option 1: Enter the barcode of the chemical container**.**

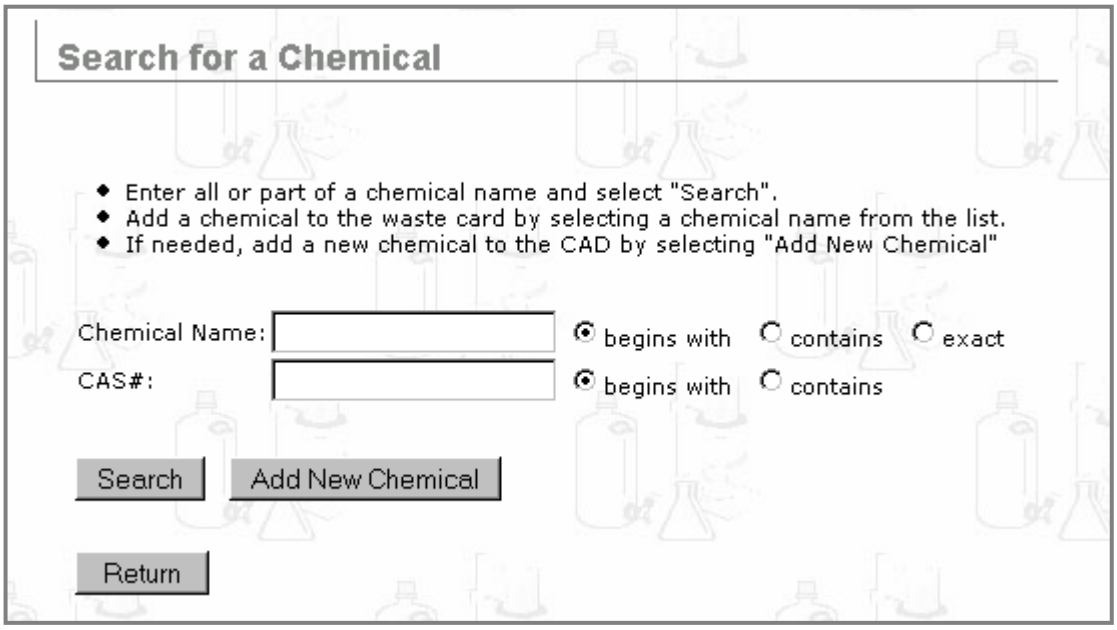
Option 2: Search for and select a chemical by clicking SelectChemical.

Option 1: Enter the barcode of the chemical container**.**

1. For each chemical, scan or enter the container's barcode.
2. Enter the percentage of this chemical in the mixture.
3. **Go on to Step 11 below.**

Option 2: Search for and select a chemical by clicking SelectChemical.

1. After clicking SelectChemical, you will now be transferred to page [WM453]:



2. Enter the Chemical Name or the CAS# into the appropriate fields.

3. NOTE:

a. When using a chemical name to search CAD, remember that singular and plural forms of certain chemicals may refer to different chemicals.

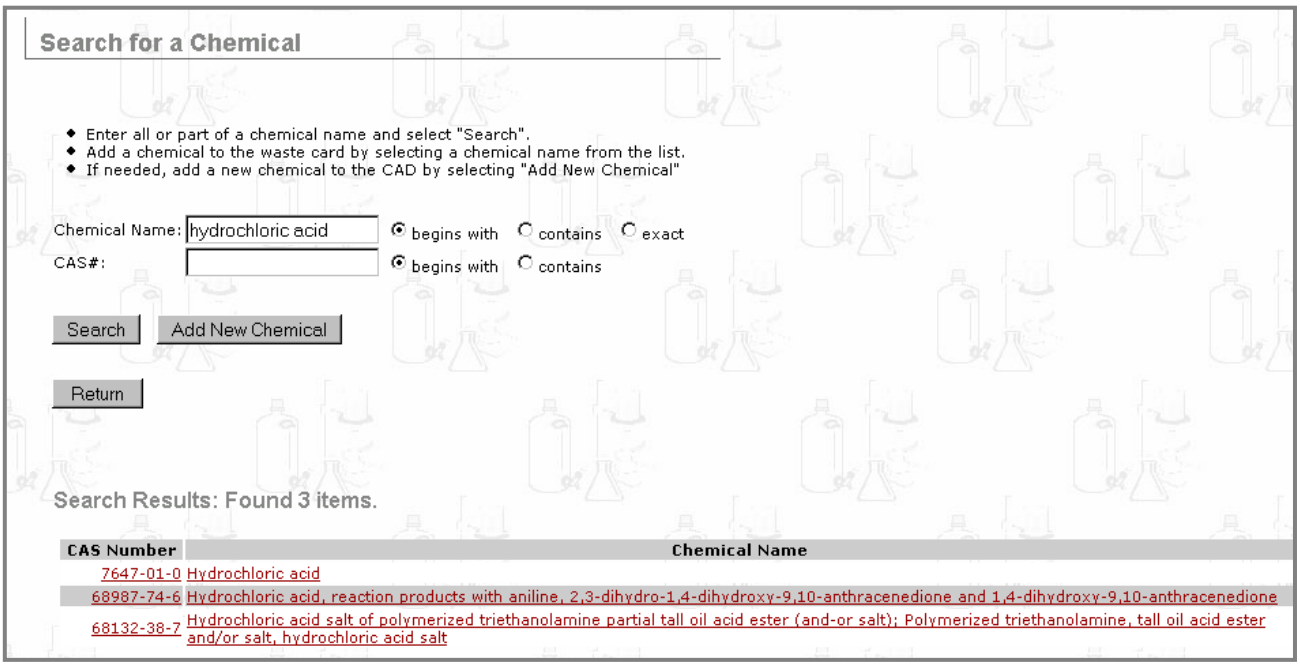
b. To refine your Chemical Name: or CAS#: search in CAD, click begins with, contains, or exact.

4. Click Return to return to page [WM110] without making any search or selection.

5. Click Search to search for your Chemical Name or CAS# in CAD.

6. **If the chemical name or CAS# IS NOT in CAD**, click Add New Chemical. You will now be transferred to page [IM572] where you can create a new CAD listing. See **Appendix A** for details on how to add a chemical to CAD.

If the chemical name IS in the CAD database, a generated list will appear at the bottom of page [WM111], as in the following example:

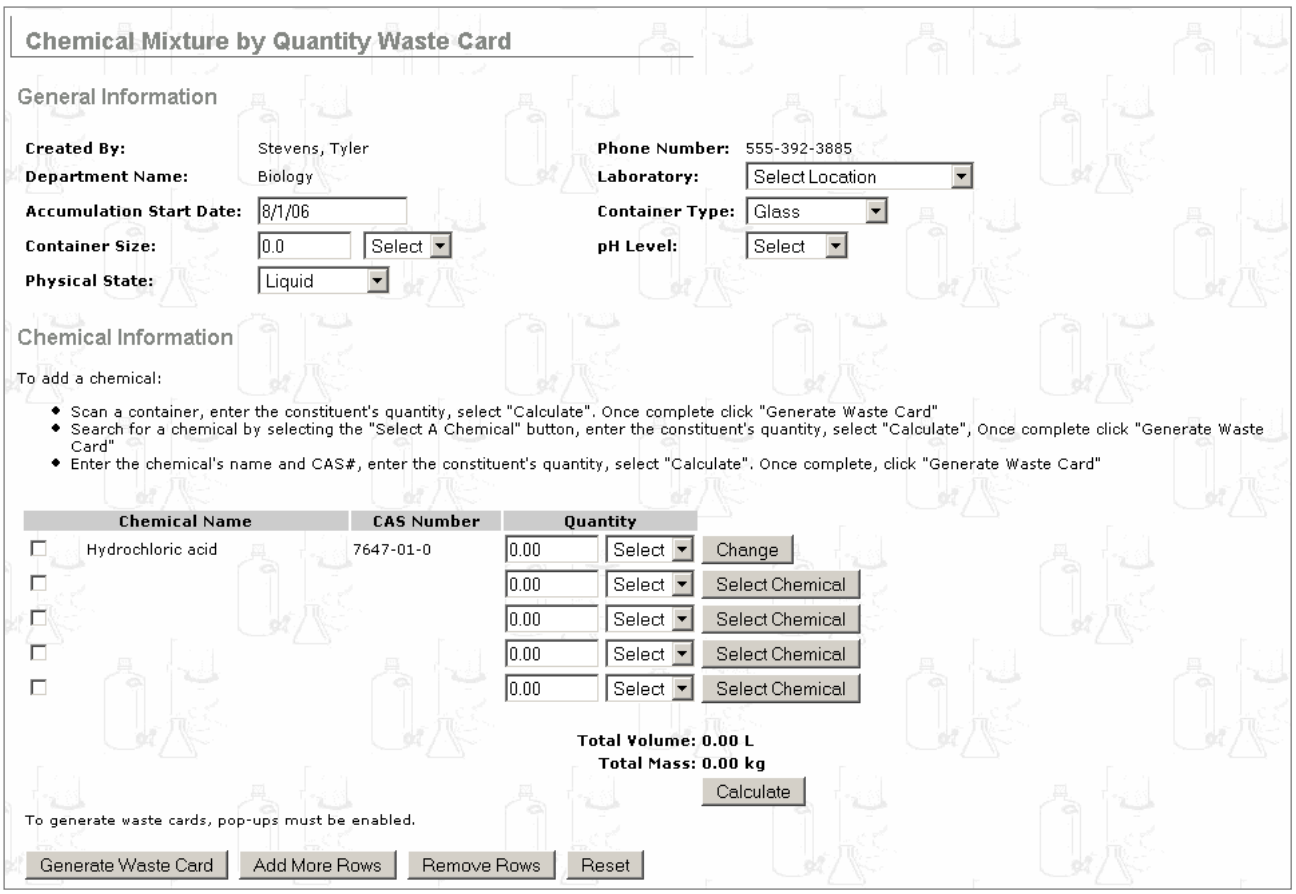


7. Click a **CAS Number** (for example, 7647-01-0) to view page [IM575]:

8. The Chemical Abstract and MSDS Details include chemical description; health, physical, and fire hazard ratings; physical characteristics; as well as links for additional MSDS information. (MSDS = Material Safety Data Sheet)

9. Click the **Chemical Name** from the generated list (for example, Hydrochloric acid) to add this chemical to your Waste Card.

10. You will now return to page [WM451]:



11. Click Reset to erase all data fields.

    Click Add More Rows to add more rows to the form.

    Click the radio button next to the chemical name. Then, click Remove Row to remove the selected row and delete its contents.

12. Click Calculate if all of the information on this page is correct and if you are ready to generate your Waste Card. CHEMATIX™ now calculates the volume and the mass of the chemicals in the mixture.

13. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B** for details on how to print a PDF file from Adobe Reader.

14. You have now finished creating your Waste Card.

Create a Waste Card Template for Chemical Mixtures

After your Waste Card (See **3.1.2, Step 14. above**) has been generated and printed, scroll down to the bottom of page [WM451]: .

You can now create a Waste Card Template for this waste chemical mixture. A Waste Card Template contains all the information necessary to create a Waste Card for chemical mixtures that are declared waste on a regular basis in your lab. Templates provide a shortcut to create new Waste Cards. This function is especially useful if you need to create many Waste Cards containing similar information. The list of Waste Card Templates is called a Hotlist:

8. To access this functionality, enter the name for this chemical mixture into the **Hotlist Item Name** field. This is the **Template Name** field.

9. Click Save To Hotlist.

For information on how to access your Hotlist, create a waste card from a template, and edit your waste card hotlist, refer to the section **4.3 Waste Card Hotlist**.

4.1.3 Pure Chemicals in Individual Containers

This choice creates Waste Cards for waste containers whose waste chemical is pure (unmixed with any other chemical). This functionality permits you to generate Waste Cards for single or multiple containers.

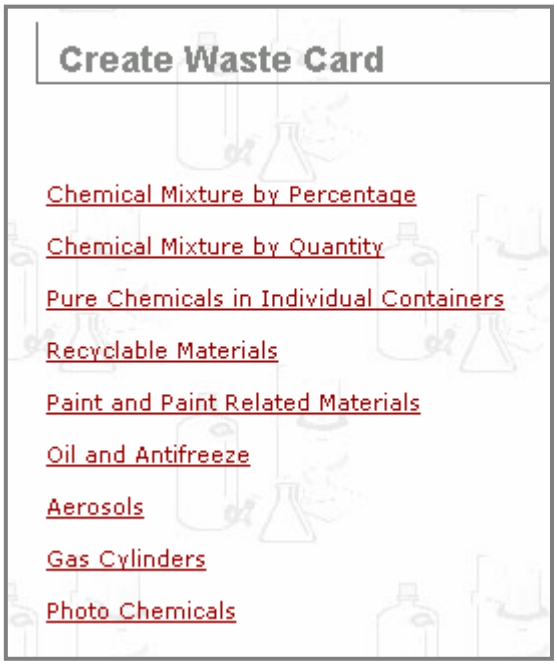
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

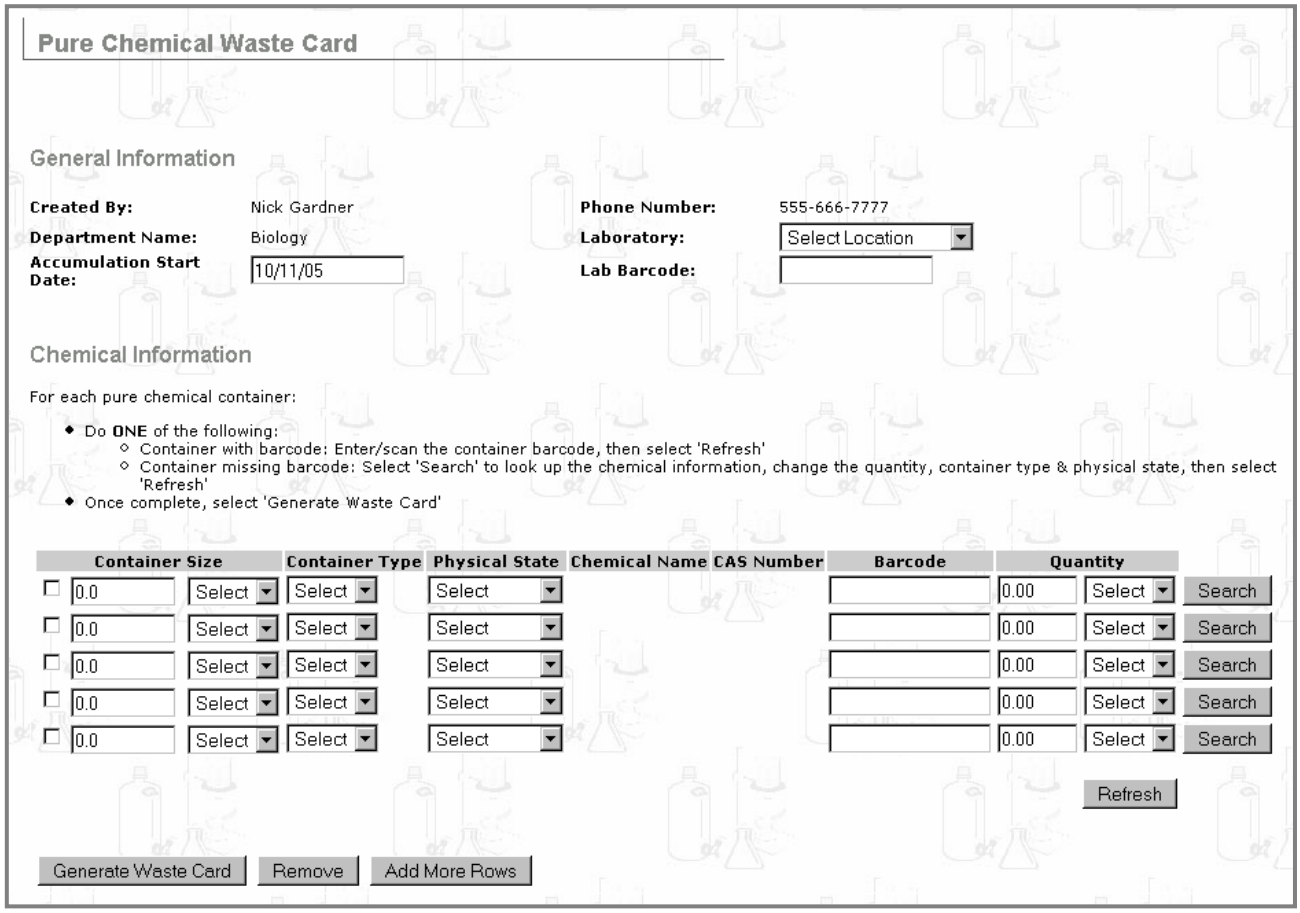
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Pure Chemicals in Individual Containers .

7. You will now be transferred to page [WM467]:



8. Select the **Accumulation Start Date:** and the **Laboratory:** or the **Lab Barcode:**.

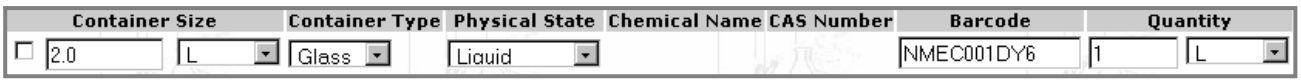
9. This page permits you to generate Waste Cards for single or multiple containers containing pure (= unmixed) chemicals. This is typically used for chemicals in their original containers.

10. Each line is for one container of waste chemical only.

11. There are two methods to select pure chemicals:
    Option 1: **Enter the barcode of the chemical container.**
    Option 2: **Select a chemical by clicking** Search.

Option 1. Enter the barcode of the chemical container.

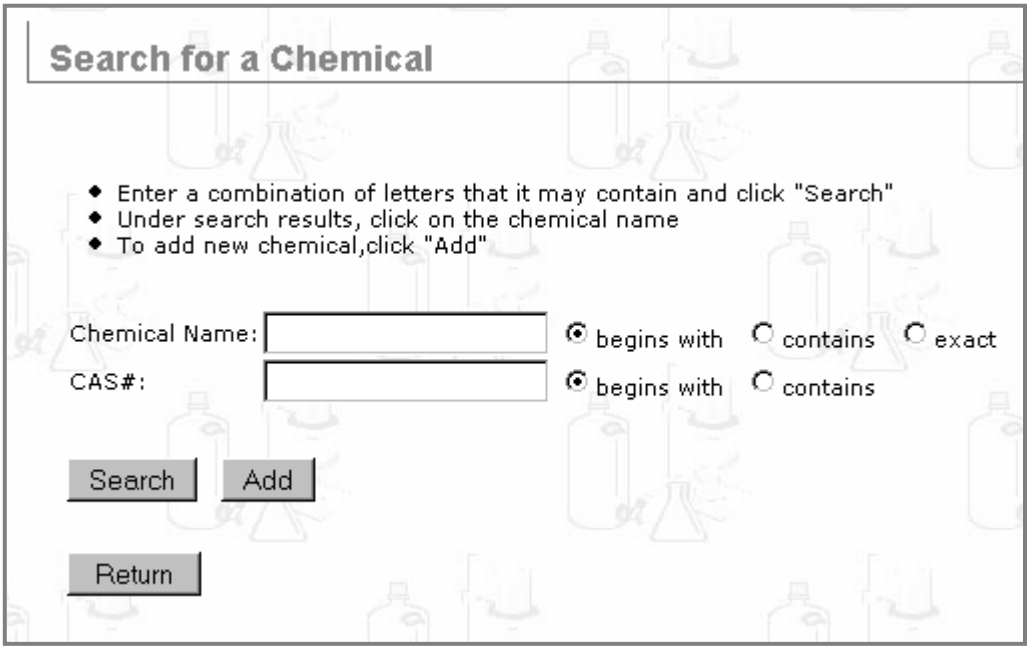
1. Enter the **Container Size** and unit, **Container Type**, **Physical State**, **Barcode**, and **Quantity** of chemical in the container and unit, for example:



2. **Go on to Step 8 below.**

Option 2. Select a chemical by clicking Search.

1. After clicking Search, you will now be transferred to page [WM453]:



2. Enter the Chemical Name or the CAS# into the appropriate field.

   NOTE:

   a. When using a chemical name to search CAD, remember that singular and plural forms of certain chemicals may refer to different chemicals.

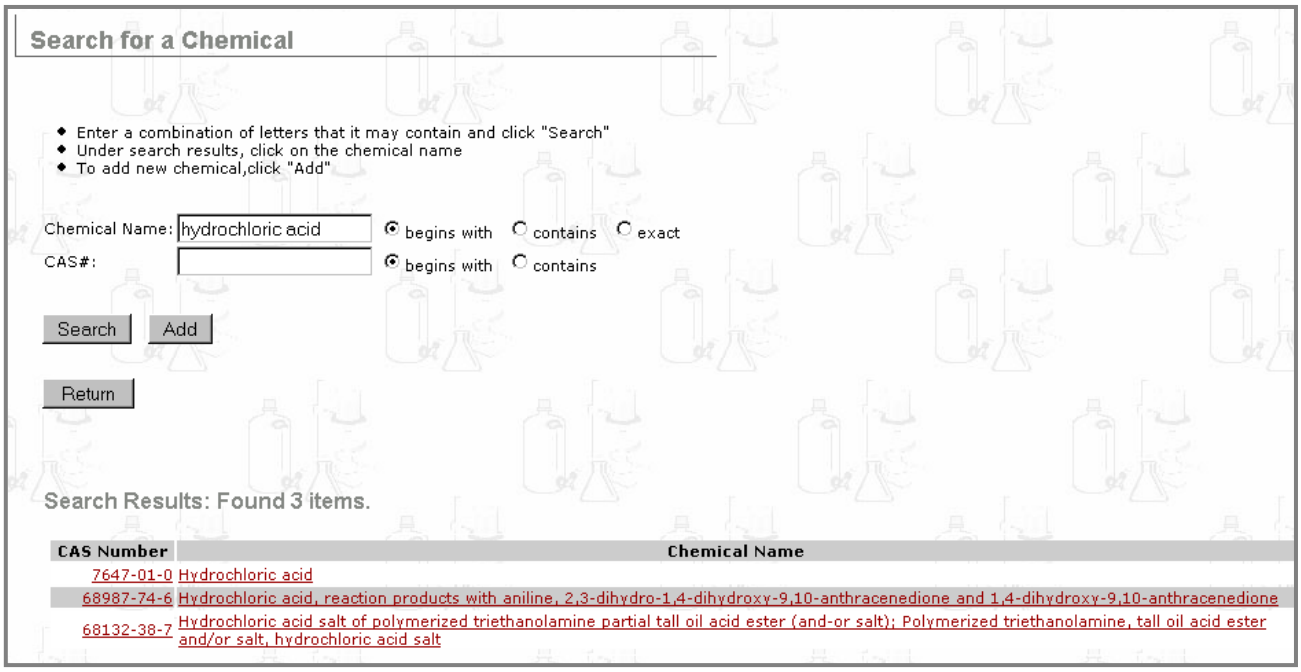
   b. To refine your Chemical Name: or CAS#: search in CAD, click begins with, contains, or exact.

3. Click Return to return to page [WM467] without making any search or selection.

4. Click Search to search for your Chemical Name or CAS# in CAD.

5. **If the chemical name or CAS# IS NOT in CAD**, click Add. You will now be transferred to page [IM572] where you can create a new CAD listing. See **Appendix A** for details on how to add a chemical to CAD.

If the chemical name IS in the CAD database, a generated list will appear at the bottom of the page, as in this example:



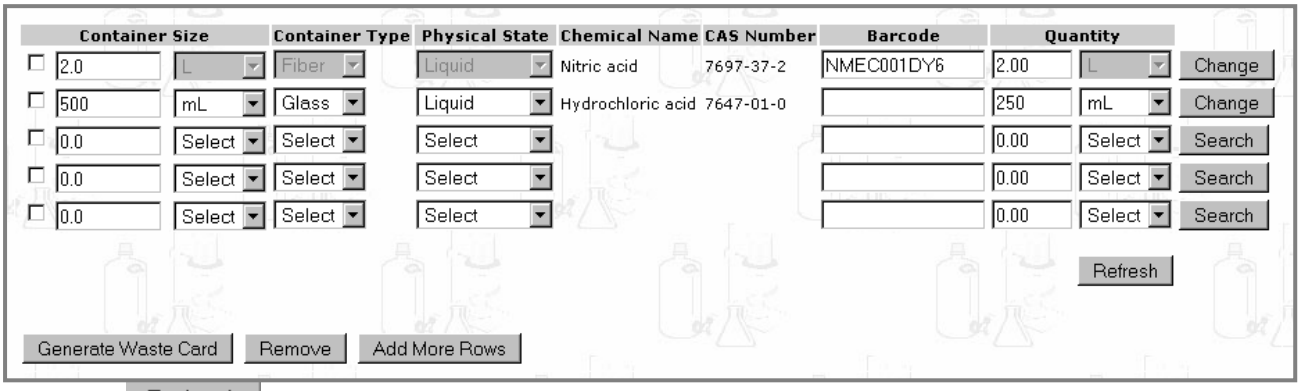
6. Click a **CAS Number** (for example, 7647-01-0) to view page [IM575]:

The Chemical Abstract and MSDS Details include chemical description; health, physical, and fire hazard ratings; physical characteristics; as well as links for additional MSDS information. (MSDS = Material Safety Data Sheet)

Click the **Chemical Name** from the generated list (for example, Hydrochloric acid) to return to page [WM467]. Your selected chemical will be added to a list for generating Waste Cards.

7. Enter the **Container Size**, **Container Type**, **Physical State**, and **Quantity** of the chemical in the container, for example:

8. Page [WM467] will now appear as in the following example:



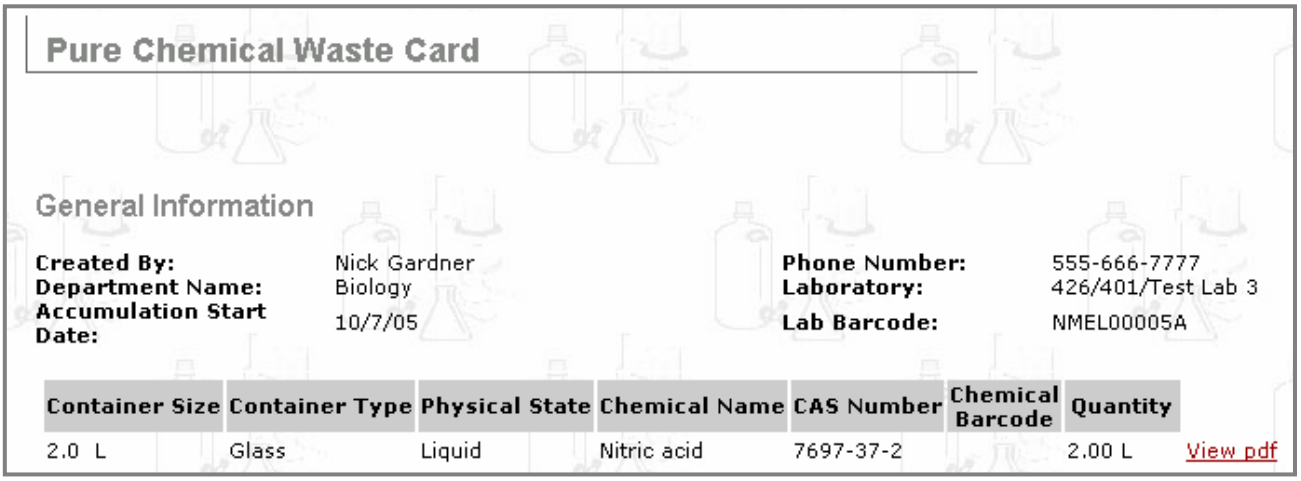
9. Click Refresh to refresh the screen and bring it up-to-date.

   Click Add More Rows to add more rows to the form.

   To remove a row and its contents, click the check box(es) ☑ on the left next to the container size. Then, click Remove.

10. Click Generate Waste Card.

11. The information for the Waste Card will now be generated. You will now be transferred to page [WM468]:



12. Click View pdf to view and print a copy of this Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

13. Affix the printed Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

14. You have now finished creating Waste Card(s) for a pure, unmixed chemical.

4.1.4 Recyclable Materials

This choice is for recyclable materials, including, but not limited to, ink cartridges, fluorescent light tubes, and batteries.

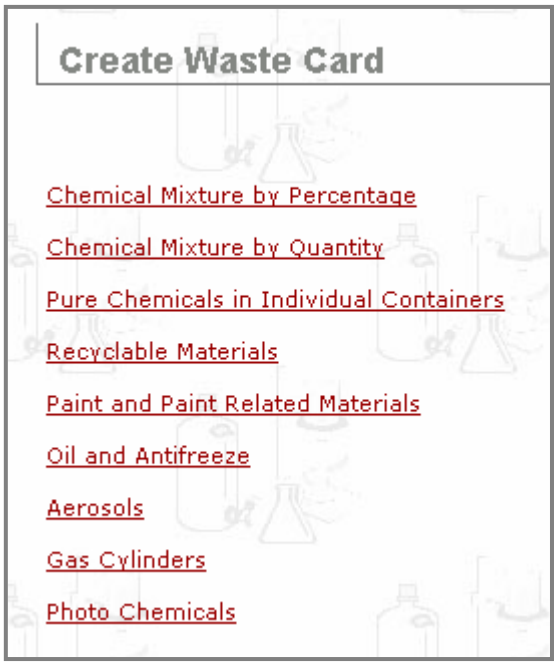
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

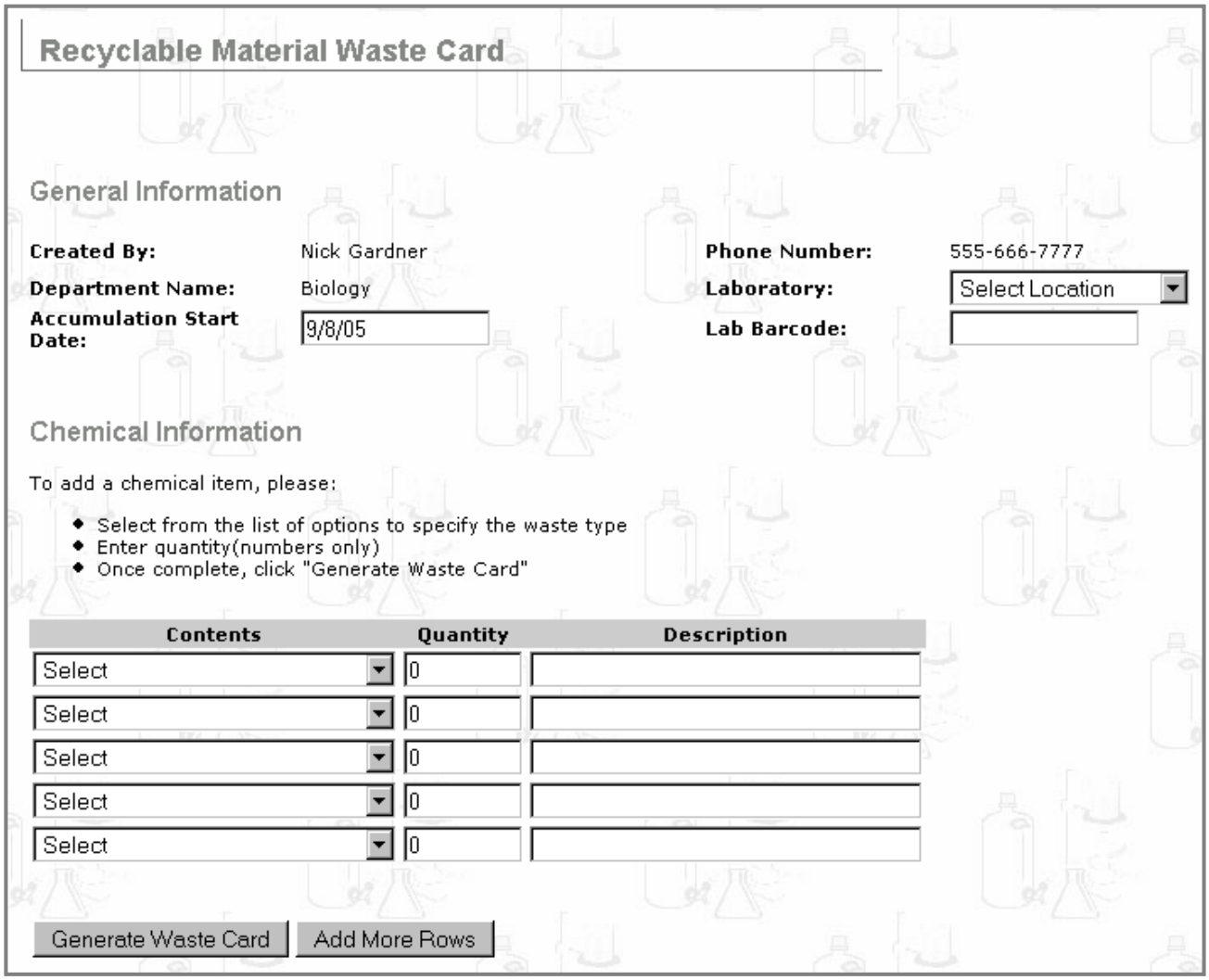
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Recyclable Materials .

7. You will now be transferred to page [WM463]:



8. Select the **Accumulation Start Date:** and **Laboratory:**.

9. Select the **Contents** of the recyclable materials, **Quantity** (as a number only), and **Description** for example:

10. Click Add More Rows to add more rows to the form.

11. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

12. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

13. You have now finished creating a Waste Card for recyclable material.

4.1.5 Paint and Paint Related Materials

This choice is for paint and paint related materials, including, but not limited to, paints, stains, varnish, shellac, thinners, paint removers, and adhesives.

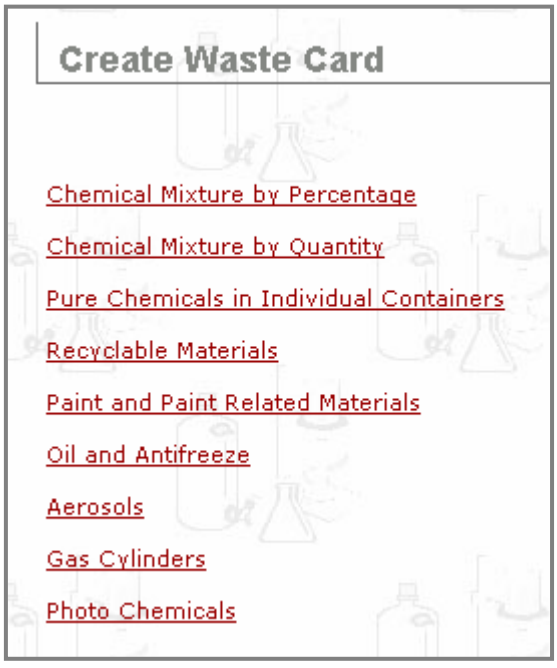
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

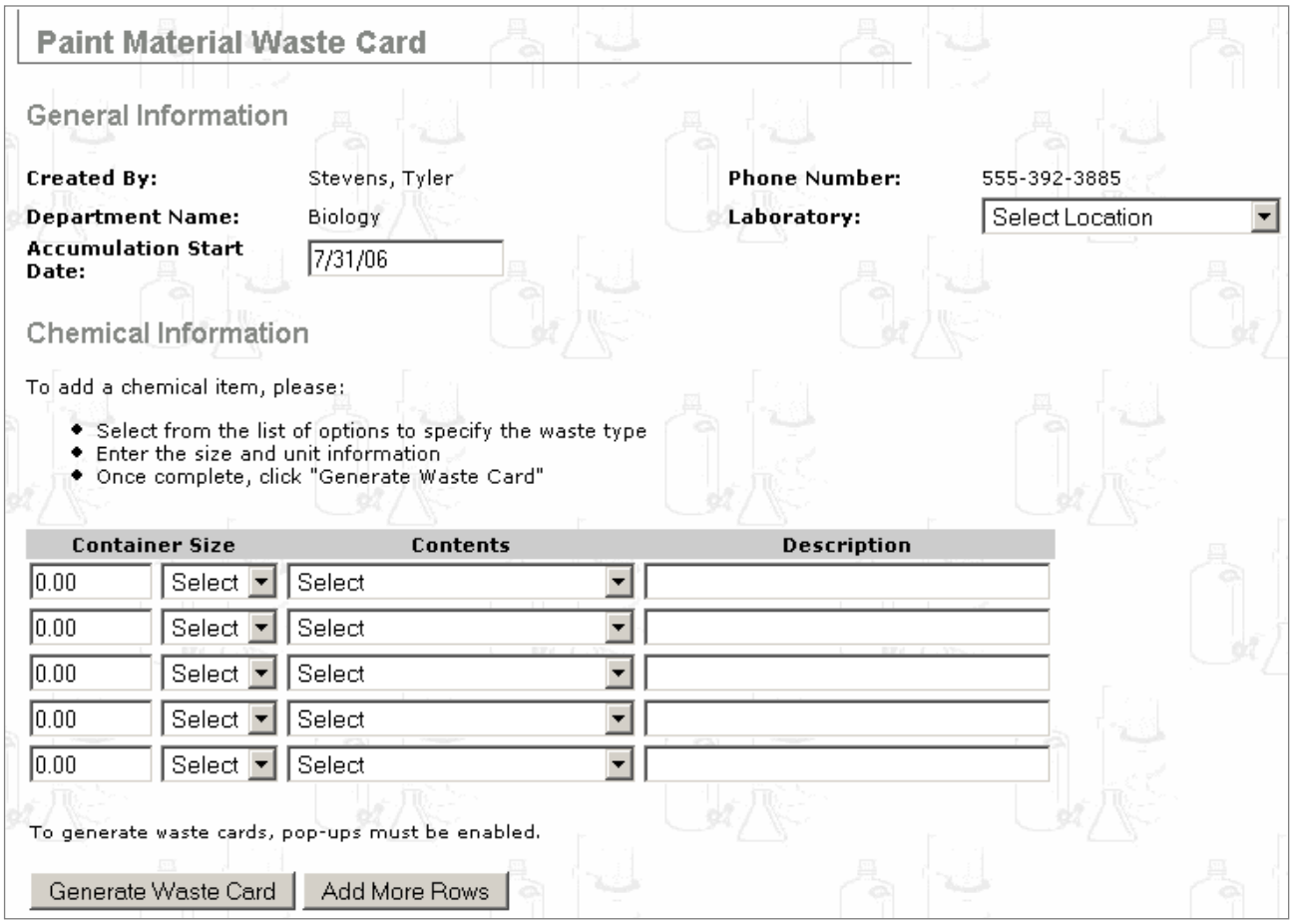
3. Click on the link Create Waste Card .

4. You will now be transferred to page [WM450]:



5. Click Paint and Paint Related Materials .

6. You will now be transferred to page [WM455]:



7. Select the **Accumulation Start Date:** and **Laboratory:**.

8. Select the **Contents** of the paint material, **Container Size**, and **Description** for example:

9. Click Add More Rows to add more rows to the form.

10. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

11. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

12. You have now finished creating a Waste Card for paint and paint related material.

4.1.6 Oil and Antifreeze

This choice is for oils and antifreeze.

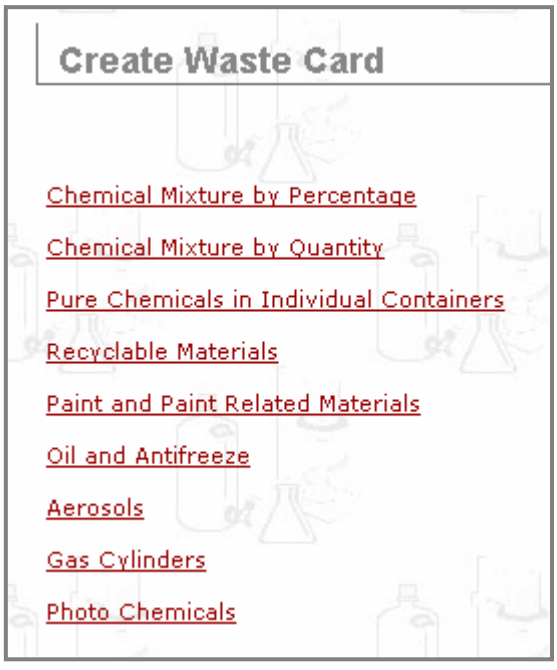
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

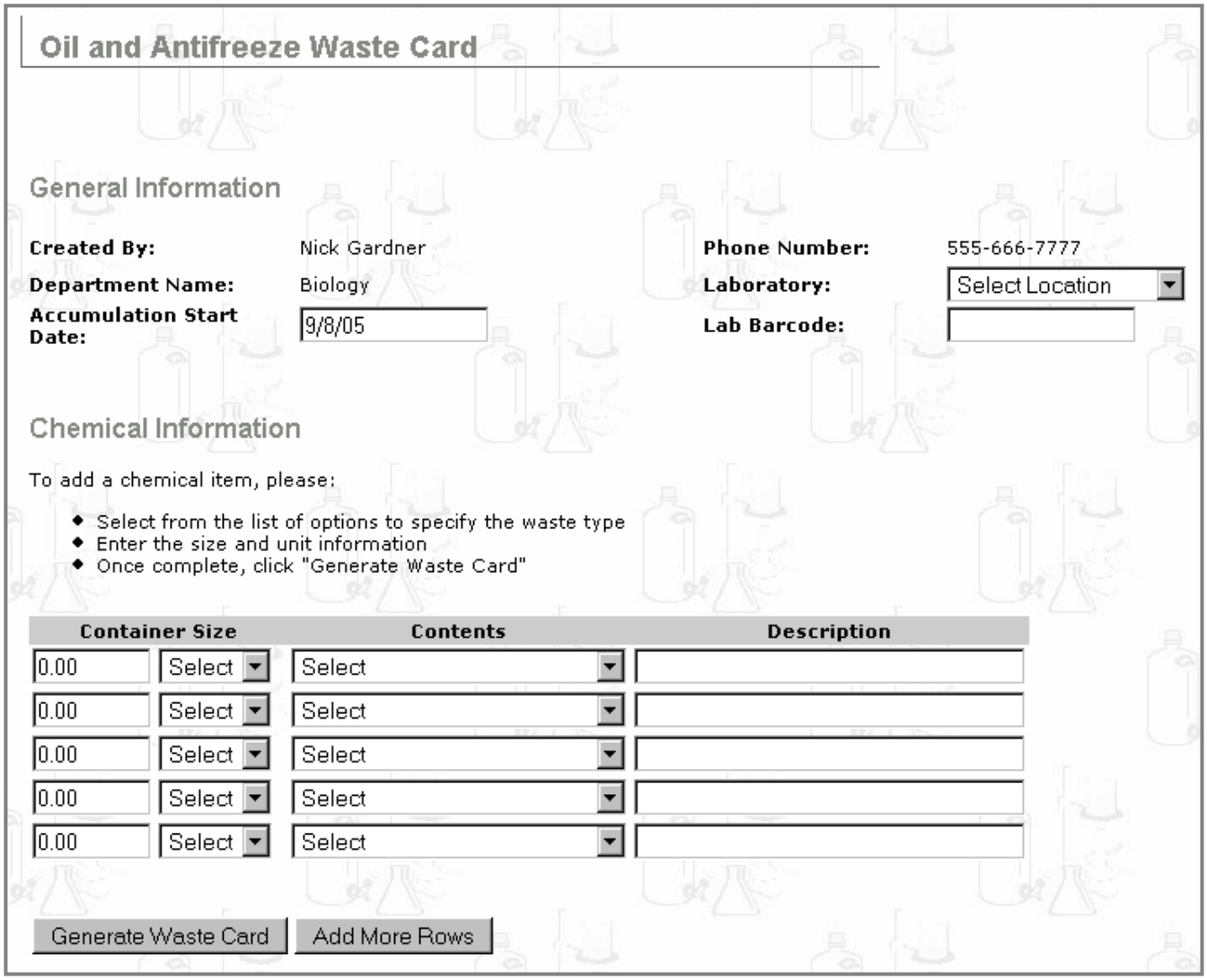
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Oil and Antifreeze .

7. You will now be transferred to page [WM457]:



8. Select the **Accumulation Start Date:** and **Laboratory:**.

9. Select the **Contents** of the oil and antifreeze materials, **Container Size**, and **Description**.

10. Click Add More Rows to add more rows to the form.

11. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

12. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

13. You have now finished creating a Waste Card for oil and antifreeze material.

4.1.7 Aerosols

This choice is for, but not limited to, flammable, corrosive, and poisonous aerosols.

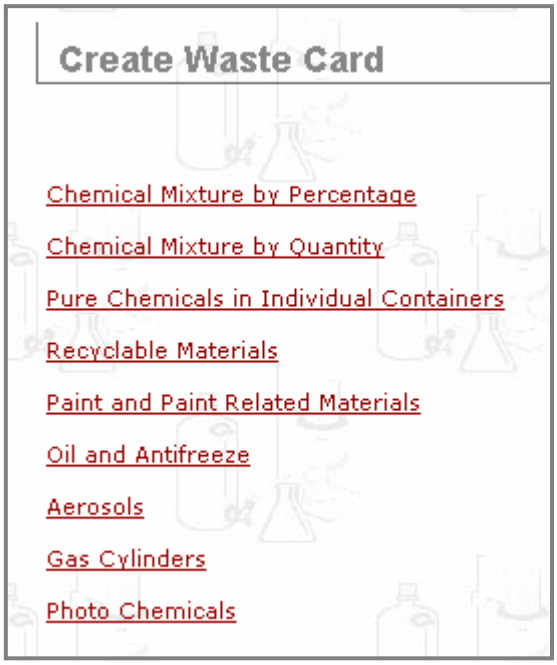
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

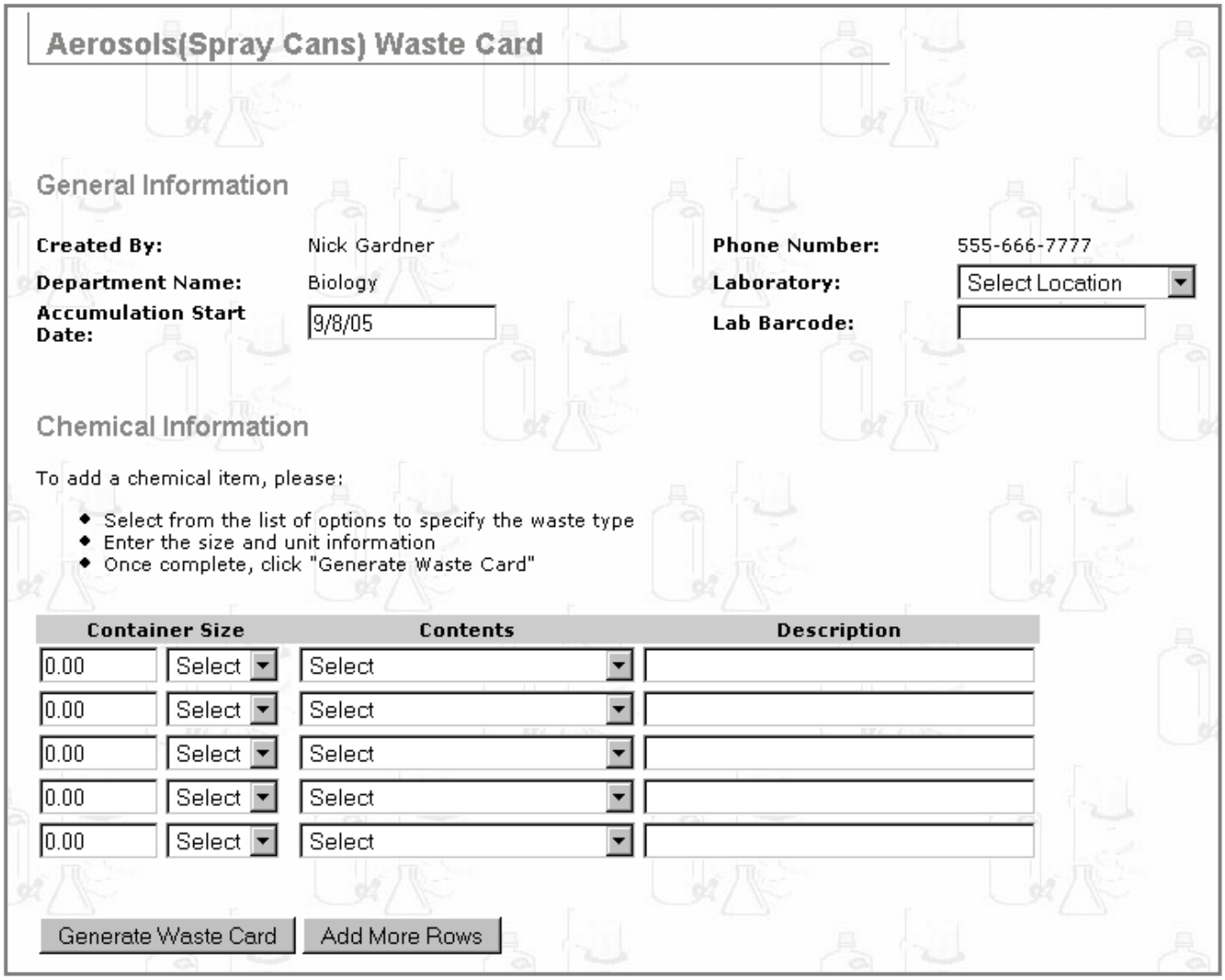
3. Click on the link Create Waste Card .

4. You will now be transferred to page [WM450]:



5. Click Aerosols .

6. You will now be transferred to page [WM459]:



7. Select the **Accumulation Start Date:** and **Laboratory:**.

8. Select the **Contents** of the oil and antifreeze materials, **Container Size**, and **Description**.

9. Click Add More Rows to add more rows to the form.

10. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

11. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

12. You have now finished creating a Waste Card for aerosols.

4.1.8 Gas Cylinders

This choice is for liquefied, non-liquefied, and dissolved compressed gases stored in non-refillable cylinders.

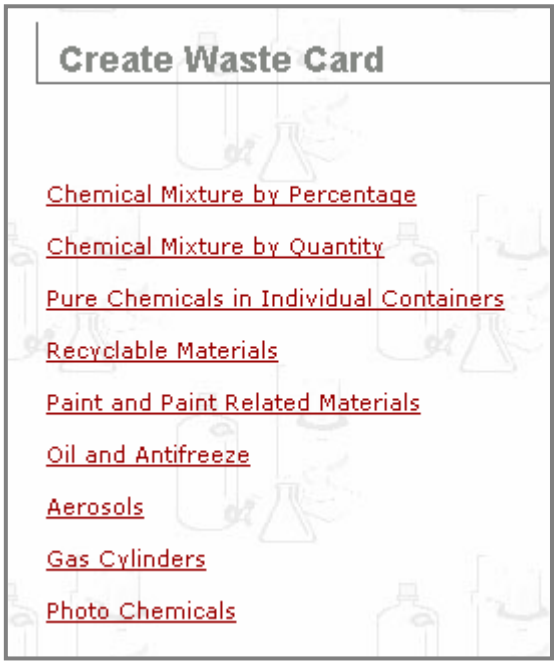
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

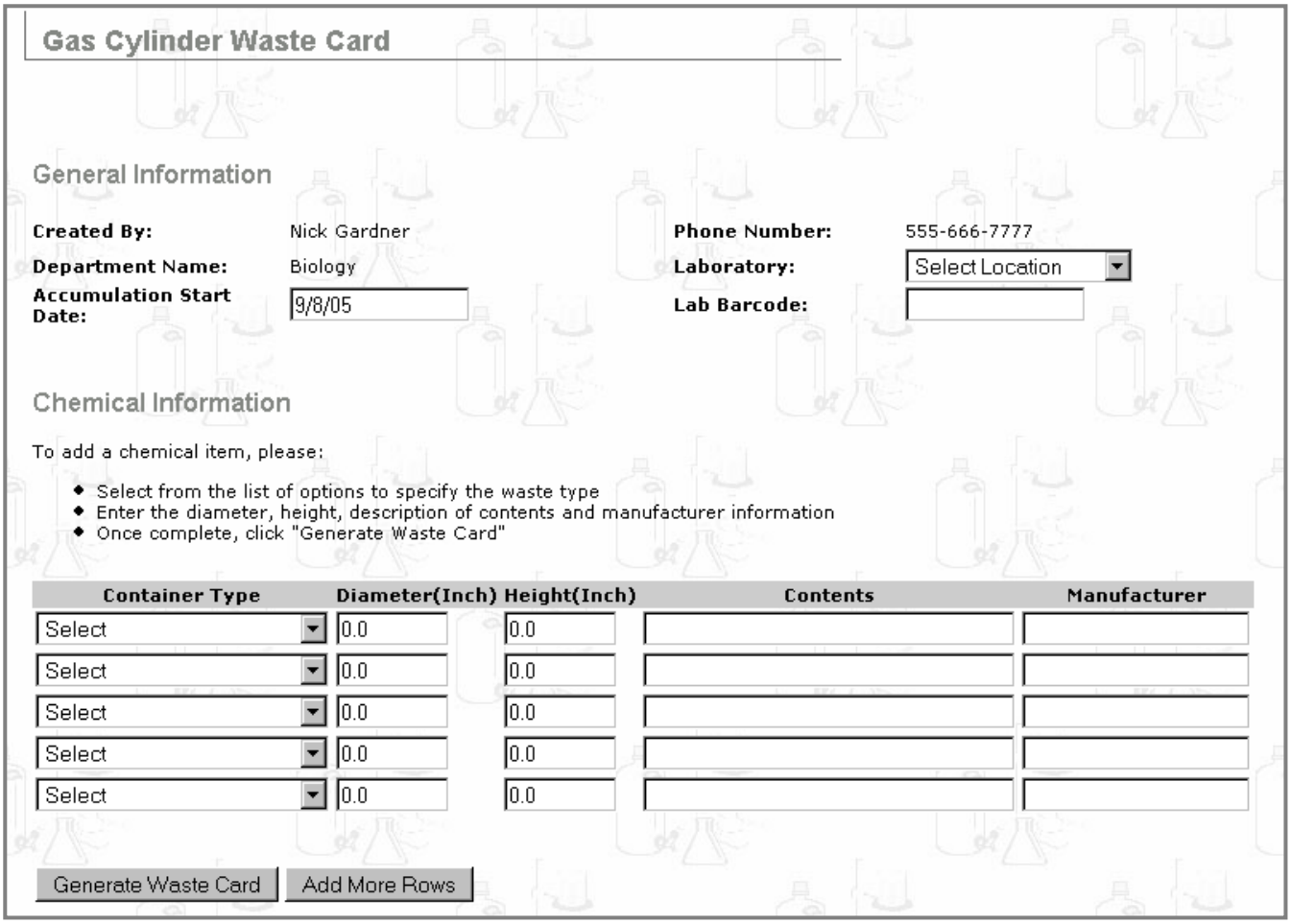
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Gas Cylinders .

7. You will now be transferred to page [WM465]:



8. Select the **Accumulation Start Date:** and **Laboratory:** and/or **Lab Barcode:**

9. Enter or select the **Container Type**, **Diameter(Inch)**, **Height(Inch)**, **Contents**, and **Manufacturer**.

10. Click Add More Rows to add more rows.

11. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

12. Affix the Waste Card to the correct cylinder and notify your institution's Department of Environmental Health & Safety for pickup.

13. You have now finished creating Waste Card(s) for non-refillable gas cylinders.

4.1.9 Photo Chemicals

This choice is for chemicals used by photo labs including, but not limited to, fixers and developers.

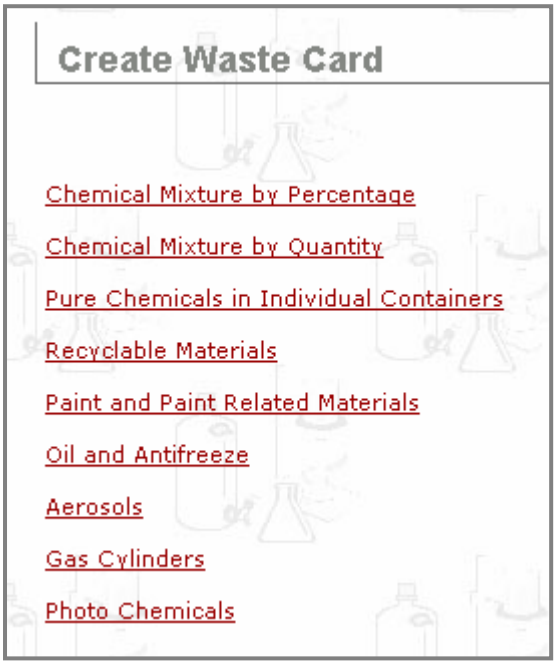
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

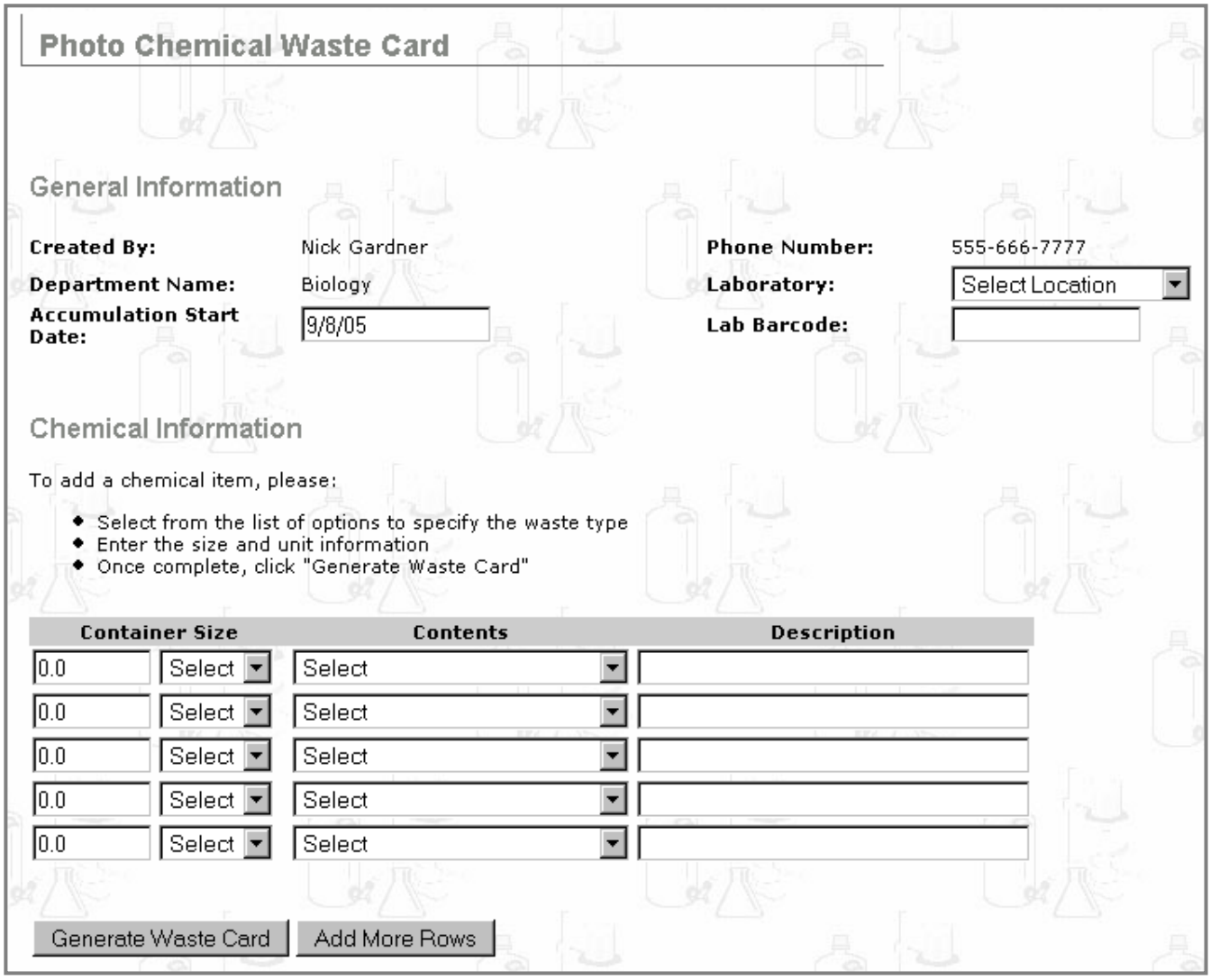
4. Click on the link Create Waste Card .

5. You will now be transferred to page [WM450]:



6. Click Photo Chemicals .

7. You will now be transferred to page [WM461]:



8. Select the **Accumulation Start Date:** and **Laboratory:**.

9. Select the **Contents** of the photo chemicals, **Container Size**, and **Description**.

10. Click Add More Rows to add more rows to the form.

11. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

12. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

13. You have now finished creating a Waste Card for photo chemicals.

4.1.10 Contaminated Materials

This choice is for chemicals used by photo labs including, but not limited to, fixers and developers.

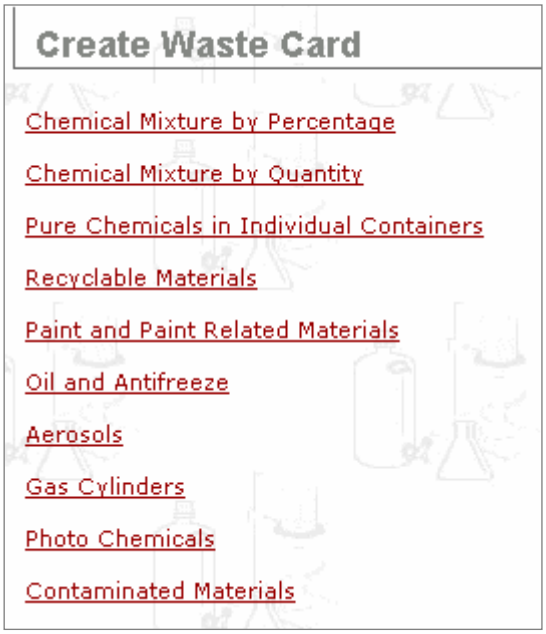
14. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

15. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

16. Scroll down to

17. Click on the link Create Waste Card .

18. You will now be transferred to page [WM450]:

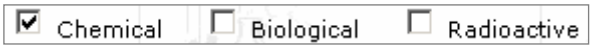


19. Click Contaminated Materials .

20. You will now be transferred to page [WM497]:

21. Select the **Accumulation Start Date:** and **Laboratory:**.

22. Select the **Contamination Type** by clicking on one of the checkboxes below:



23. Enter the name of the contaminated material(s) (in the **Contaminated Materials** field) and the materials that it was contaminated by (in the **Contaminated By** field).

24. Click Generate Waste Card to view and print your Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

25. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

26. You have now finished creating a Waste Card for contaminated materials.

4.2 Edit a Waste Card

This function permits PI's and Lab Users to view, modify, and print previously generated Waste Cards. All Waste Cards must be generated prior to pickup.

1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

3. Click on the link Edit Waste Card .

4. You will now be transferred to page [WM113]:

4.2.1 Search for an existing Waste Card

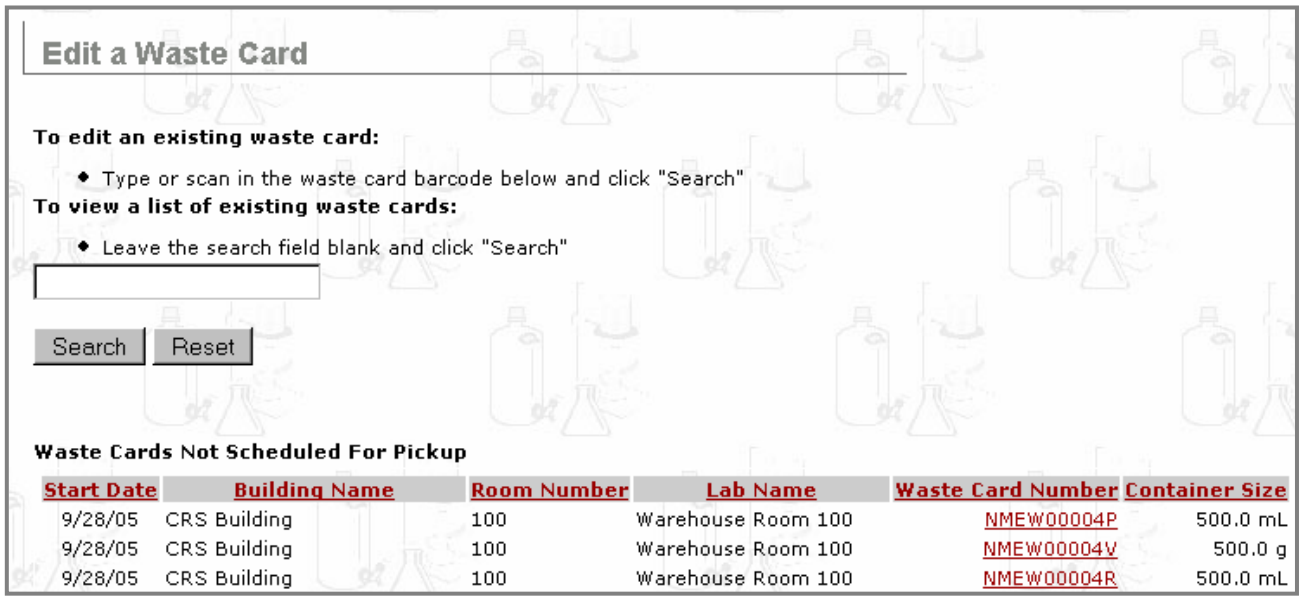
From this page, there are two choices to search an existing Waste Card:

Option 1: ***Enter a waste barcode into the data field and click*** Search.

Continue to **4.2.2 Edit Waste Card**.

Option 2: ***Leave the search field blank and click*** Search.

The list of Waste Cards in your lab(s) will be generated at the bottom of page [WM113]:



1. The Waste Cards can be sorted in ascending order by column. To do this, click on the name of the column. For example, clicking on the column heading **Start Date** will arrange all of the Waste Cards by date from the oldest to the most recent and clicking on the column heading **Building Name** will arrange all of the Waste Cards by building beginning with the letter A and ending with Z, etc.

2. Click on a **Waste Card Number** to edit, view, and print that Waste Card.

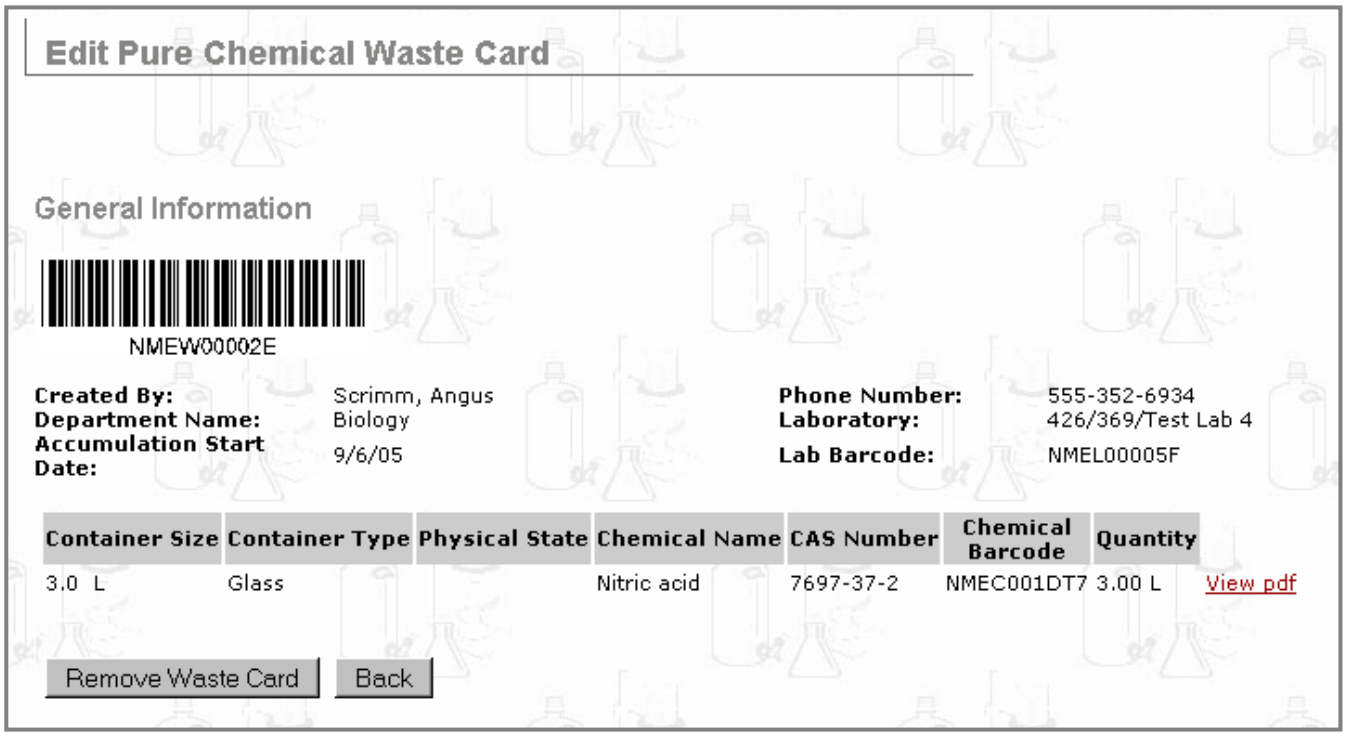
4.2.2 Edit Waste Card

There are two types of waste cards that can be edited:

Option 1: **If the Waste Card is for a pure chemical.**
Option 2: **If the Waste Card is for a chemical mixture, recyclable materials, paint and paint related materials, oil and antifreeze, aerosols, gas cylinders, photo chemicals, or contaminated materials.**

Option 1: If the Waste Card is for a pure chemical, your options to edit this card are limited, as in the following example:

After clicking Search, you will now be transferred to [WM475]:



On this page, you have four alternatives:

1. Print this page.

To print this page, click File on your browser. On the drop-down menu, scroll down to Print... and click Print... . You can now print this page through your browser.

2. View PDF

Click View pdf to view and print this Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

3. Back

Click Back to return to page [WM113]:

4. Remove Waste Card

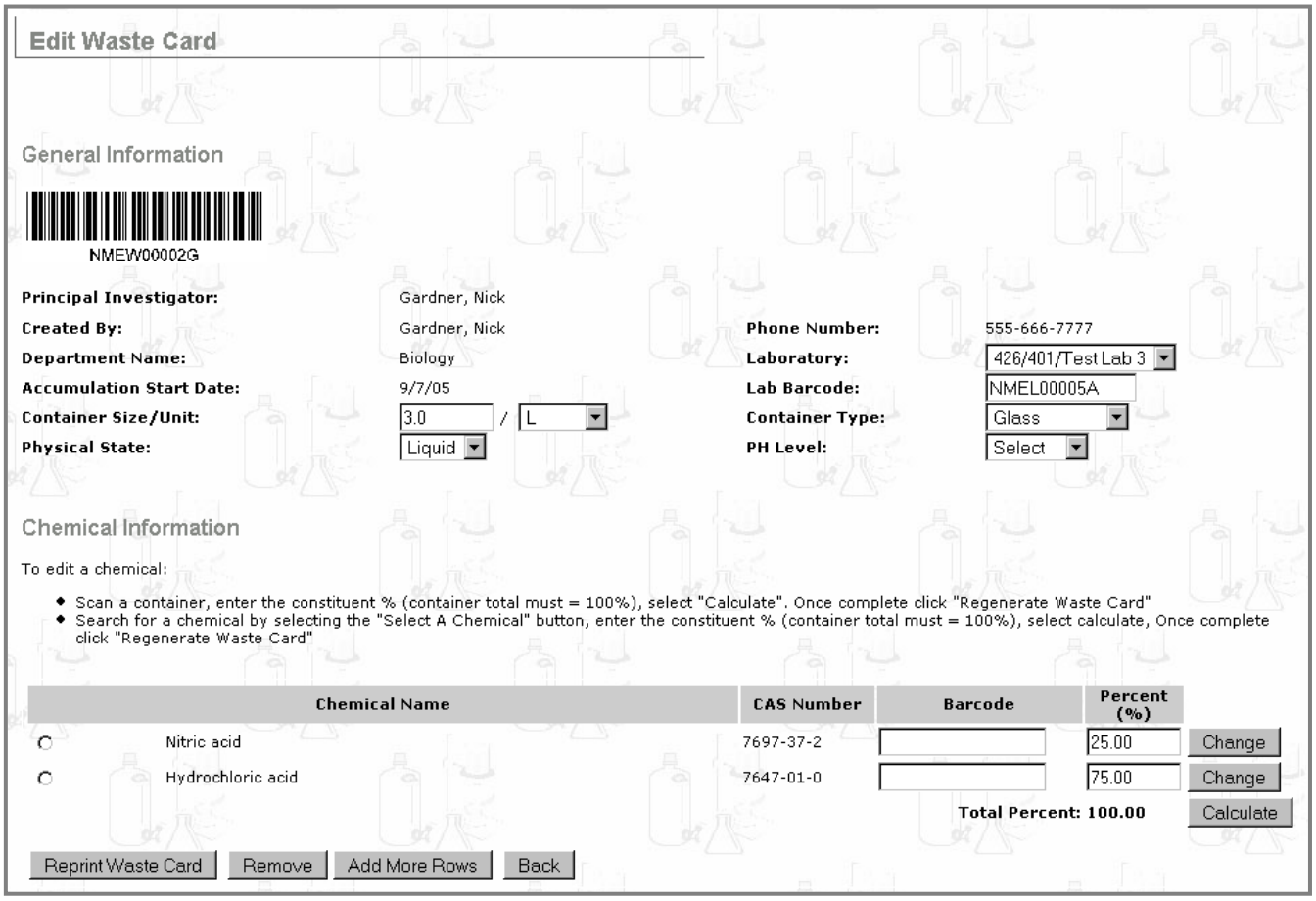
Click Remove Waste Card to remove this Waste Card from your list of Waste Cards.

This Waste Card will now be deleted from your lab. "Deleted" in this case means, "rendered inactive" to your lab. CHEMATIX™ will always retain records of this Waste Card for future tracking purposes.

You will now be transferred to page [WM113]: Edit a Waste Card

Option 2: If the Waste Card is for a chemical mixture (that is, not a pure chemical), recyclable materials, paint and paint related materials, oil and antifreeze, aerosols, gas cylinders, photo chemicals, or contaminated materials, you can change all previously inputted Waste Card information, for example for a Chemical Mixture:

After clicking Search, you will now be transferred to [WM114]:



You can update or change all of the inputted information on this page.

1. Change and modify the information in the following fields as necessary: **Laboratory:** or **Lab Barcode:**, **Container Size/Unit:**, **Container Type:**, **Physical State:**, and the **PH Level:**.

2. Under Chemical Information, click Change to change the chemical in this row.

3. You will now be transferred to page [WM111] where you can search for a chemical in CAD by chemical name or by CAS#:

Search for a Chemical

4. For information on how to search for a chemical in CAD, please see **4.1.1 Chemical Mixture by Percentage, Option 2.**

   Change and modify the constituent percentage as necessary. Click [Calculate]. CHEMATIX™ now totals the chemical percentages in the mixture or the quantities of the mixture. If by percentage, the total **must** add up to 100% **exactly**:

   Total Percent: 100.00

5. Click [Add More Rows] to add more rows to the form.

6. To delete a row and its contents, click the radio button ◉ next to the chemical name. Then, click [Remove].

7. Click [Back] to return to page [UM113] Edit a Waste Card without making any changes:

8. Click [Add More Rows] to add more rows to the form.

9. Click [Reprint Waste Card] to view and print your Waste card in PDF format. See **Appendix B.** for details on how to print a PDF file from Adobe Reader.

10. You have now finished editing a created Waste Card for a chemical mixture.

If you wish to edit a Waste Card for recyclable materials, paint and paint related materials, oil and antifreeze, aerosols, gas cylinders, photo chemicals, or contaminated materials, you can change all previously inputted Waste Card information. First, Search and Select the waste card (as explained in **4.2.1**). Next, edit the waste card. For a detailed explanation on how to edit specific types of waste cards (i.e. aerosols), see the section **4.1 Create Waste Card**.

4.3 Waste Card Hotlist

This function permits users to create a new Waste Card for chemical mixtures from a Waste Card Template, to modify a Waste Card name, and to remove a Hotlist entry. The Waste Card Hotlist is a list of Waste Card Templates. Templates are a convenient way for users to create Waste Cards that contain similar information. Each user can have his or her own unique Hotlist. This functionality is available only for chemical mixtures.

To create a Waste Card Template, see **Create a Waste Card Template for Chemical Mixtures** in **4.1.1 Chemical Mixture by Percentage** above.

1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

4. Click on the link Waste Card Hot List .

5. You will now be transferred to page [WM118]:

NOTE: The Global Waste Card Hotlist is created by a Hazardous Waste Operator and can be viewed by all users. In contrast, the Waste Card Hotlist is the templates that the user has created.

There are three choices on this page:

Option 1: ***4.3.1 Create a Waste Card from a Template***

Option 2: ***4.3.2 Remove a Hotlist Waste Card***

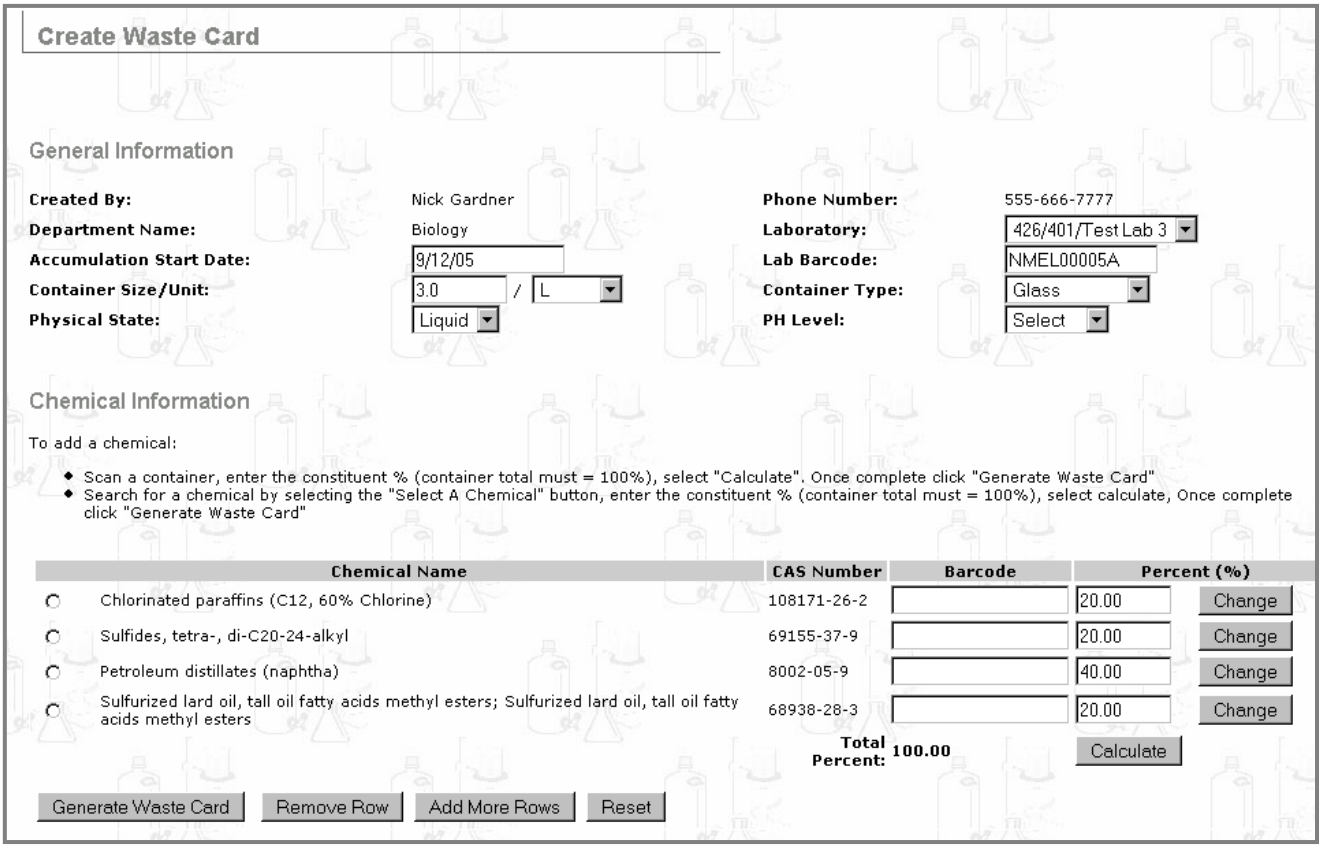
Option 3: ***4.3.3 Modify a Hotlist Name***

4.3.1 Create a Waste Card from a Template

1. Click on the radio button  of the Template from which you wish to create a Waste Card for a chemical mixture.

2. Click on the  button.

3. You will now be transferred to page [WM110]:



This is your Waste Card Template. This Template will enable you to easily create a new Waste Card.

4. Change and modify the Template as necessary in order to create a new Waste Card.

5. When you are satisfied that the information in the Template is correct, click Generate Waste Card to generate, view and print your Waste Card in PDF file format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

6. Affix the Waste Card to the correct container and notify your institution's Department of Environmental Health & Safety for pickup.

7. You have now finished creating a Waste Card from a Template in your Hotlist.

4.3.2 Remove a Hotlist Waste Card

1. Click on the radio button ◉ of the Hotlist name that you wish to remove.

2. Click on the Remove button.

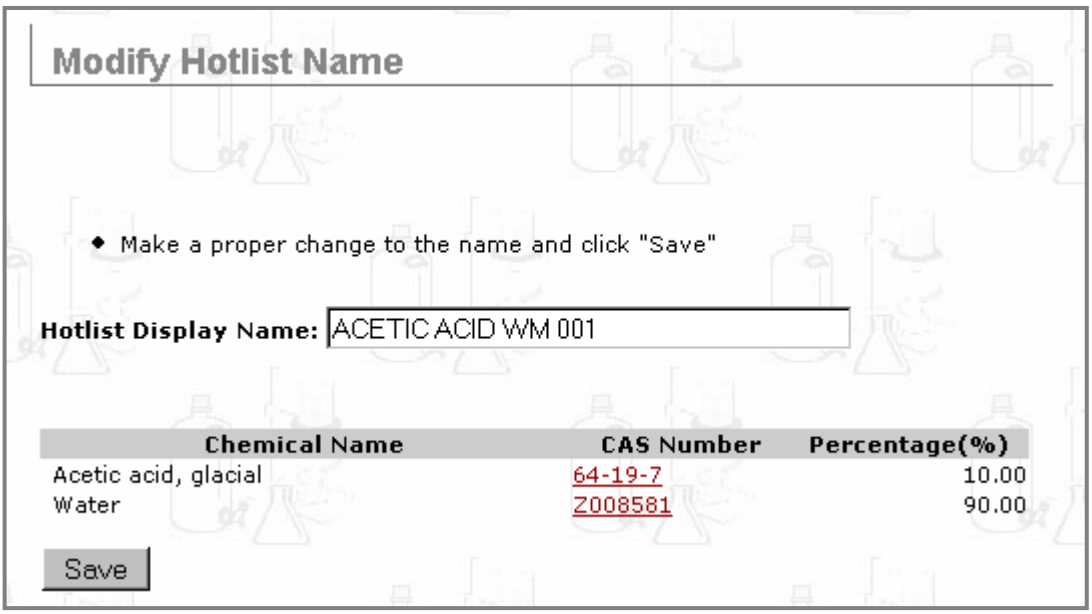
3. The chosen Hotlist template is removed from your Hotlist:

4.3.3 Modify a Hotlist Name

1. Click on the radio button ◉ of the Hotlist name that you wish to modify, for example: ◉ 1. ACETIC ACID WM 001.

2. Click Modify Hot List Name.

3. You will now be transferred to page [WM119], for example:



4. Modify the Hotlist Display Name.

5. Click Save when you are satisfied with the new Hotlist name.

6. The following message will be generated:

4.4 Create Pickup Worksheet

This function permits users to create Pickup Worksheets.

Once the waste chemical container is ready for disposal and once a Waste Card for that waste chemical container is generated, printed, and affixed to the container, a Pickup Worksheet is created. A Pickup Worksheet is a notification for Hazardous Material personnel to collect the waste from the lab. Such wastes will then be transported to treatment or disposal facilities.

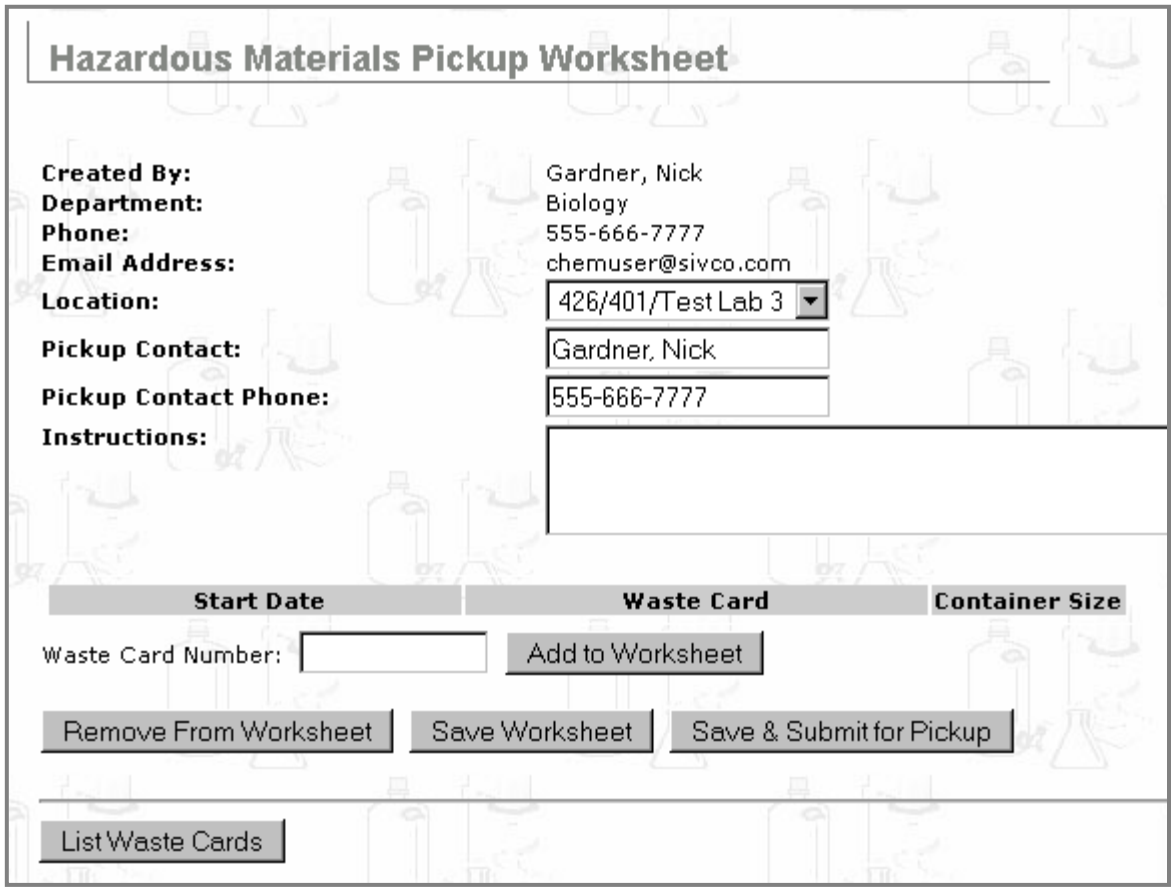
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

3. Click on the link Create Pickup Worksheet .

4. You will now be transferred to page [WM200]:



The major areas of functionalities on this page are:

Option 1: ***4.4.1 Add Waste Cards to the Pickup Worksheet by using the Waste Card Number***

Option 2: ***4.4.2 Add Waste Cards to the Pickup Worksheet from a Waste Card List***

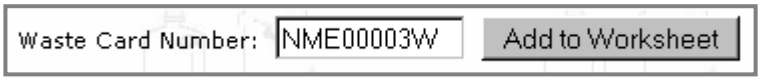
Option 3: ***4.4.3 Manage the Pickup Worksheet***

Option 4: ***4.4.4 Save & Submit the Pickup Worksheet***

Option 5: ***4.4.5 View Submitted Pickup Worksheets***

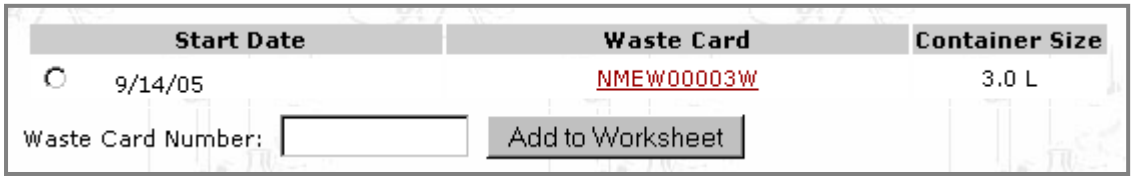
4.4.1 Add Waste Cards to the Pickup Worksheet by using the Waste Card Number

1. Enter the Waste Card number into the Waste Card Number: field, for example:



2. Click Add to Worksheet.

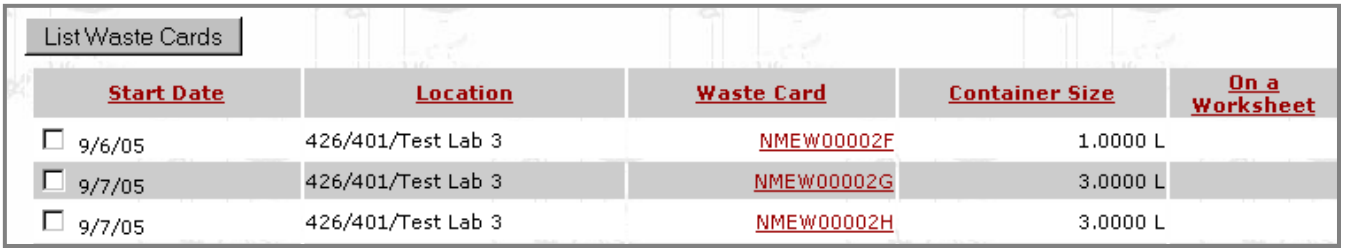
3. This Waste Card is now added to your Pickup Worksheet, as in this example:



4.4.2 Add Waste Cards to the Pickup Worksheet from a Waste Card List

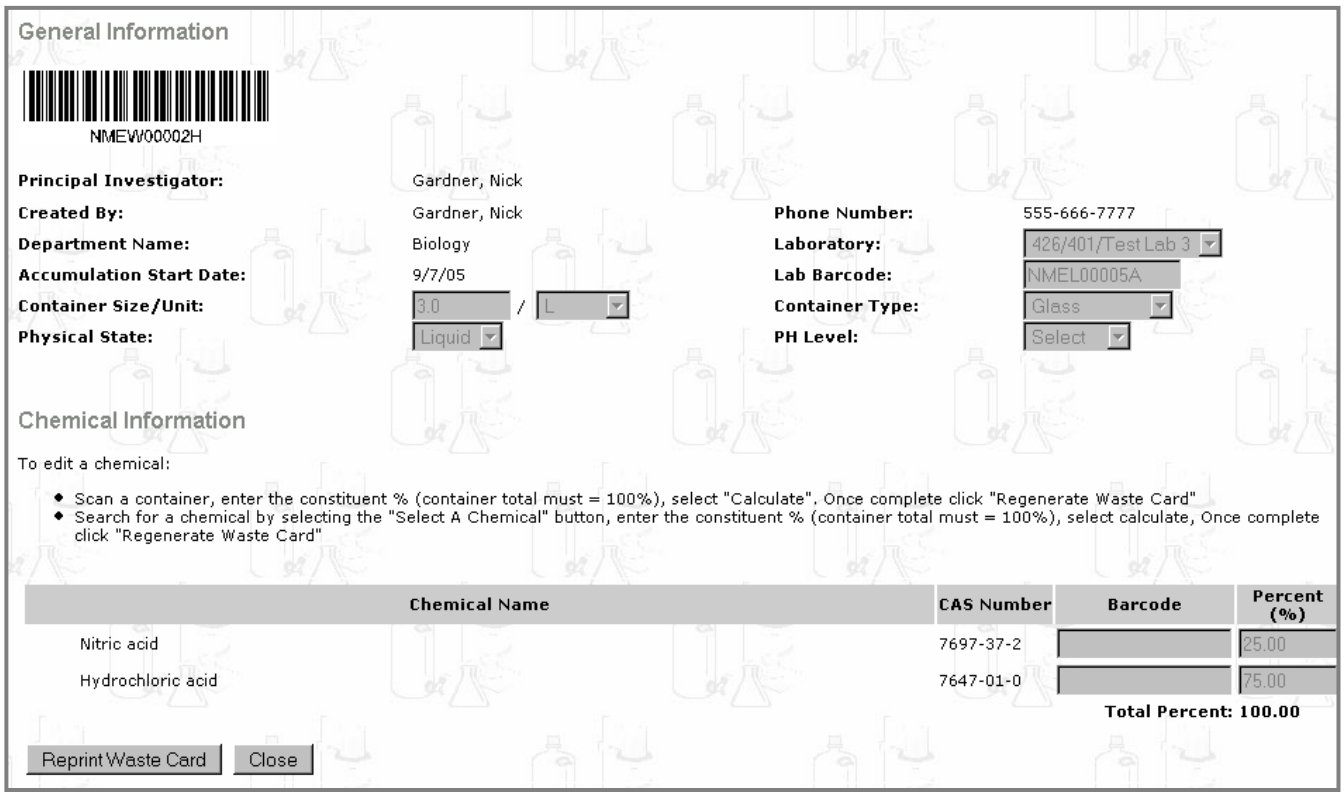
1. Click List Waste Cards at the bottom of page [WM200].

2. A generated list of Waste Cards will appear at the bottom of this page:



   a. Click either Start Date, Location, Waste Card, Container Size, or On a Worksheet to arrange the Waste Cards in these columns in ascending order.

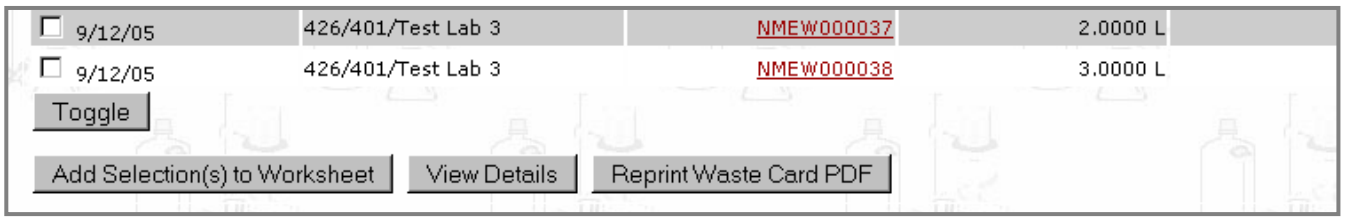
   b. Click a Waste Card barcode to view the general information for that Waste Card, for example:



c. Click Reprint Waste Card (or View pdf , depending upon the page format) to view and print the Waste Card in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader..

d. Click Close to close this page and return to page [WM200]:

3. Scroll down to the bottom of the generated Waste Cards on page [WM200]:



The explanation for the functionalities of these buttons is as follows:

Toggle

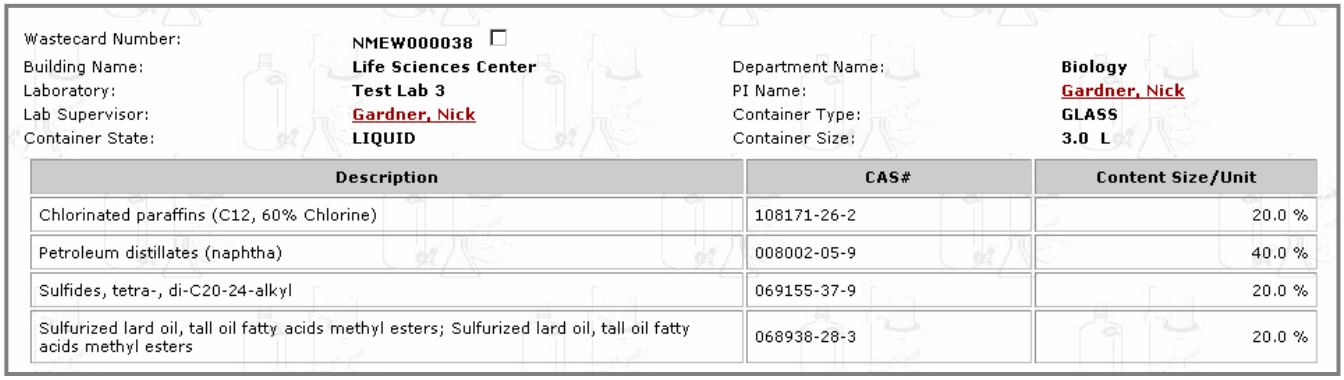
Click Toggle to check ☑ or uncheck ☐ all of the check boxes next to the Start Date on each row.

Add Selection(s) to Worksheet

Click on one or more check boxes ☑ to select Waste Cards. Click Add Selection(s) to Worksheet to add the selected Waste Cards to the Worksheet. The selected Waste Card(s) will be added to your Worksheet.

View Details

Click View Details to view the details of all Waste Cards. You will now be transferred to page [WM481], for example:



Wastecard Number:	NMEW000038 ☐		
Building Name:	Life Sciences Center	Department Name:	Biology
Laboratory:	Test Lab 3	PI Name:	Gardner, Nick
Lab Supervisor:	Gardner, Nick	Container Type:	GLASS
Container State:	LIQUID	Container Size:	3.0 L

Description	CAS#	Content Size/Unit
Chlorinated paraffins (C12, 60% Chlorine)	108171-26-2	20.0 %
Petroleum distillates (naphtha)	008002-05-9	40.0 %
Sulfides, tetra-, di-C20-24-alkyl	069155-37-9	20.0 %
Sulfurized lard oil, tall oil fatty acids methyl esters; Sulfurized lard oil, tall oil fatty acids methyl esters	068938-28-3	20.0 %

From this page, you can review and select which Waste Cards you wish to add to your Worksheet.

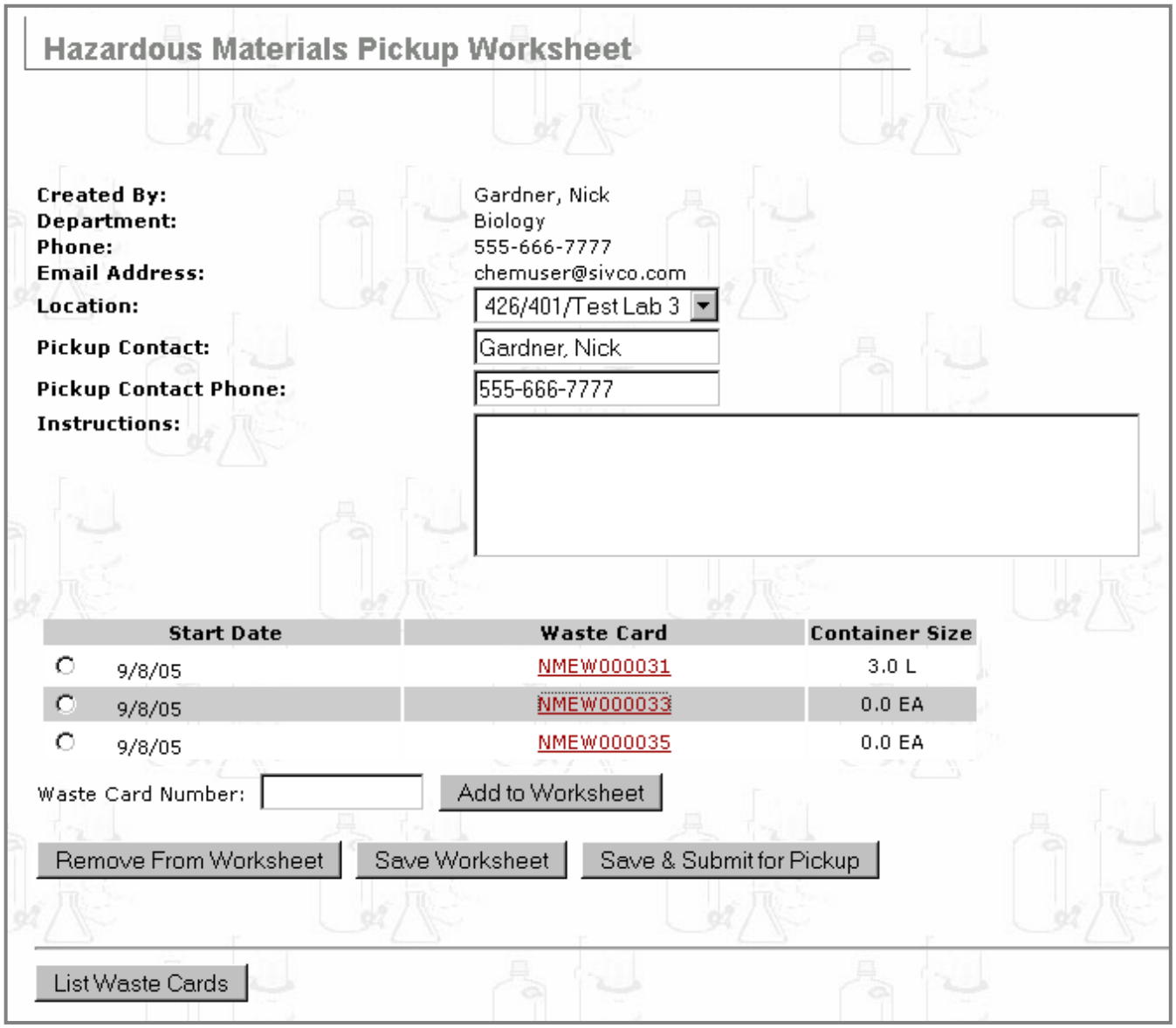
a. To add Waste Cards to your Worksheet, click the check box(es) next to the Waste Card number.
b. Scroll down to the bottom of page [WM481] and click Add Selection(s) to Worksheet. The selected Waste Card(s) will be added to your Worksheet.

Reprint Waste Card PDF

a. Click the check box(es) ☑ to select Waste Card(s).

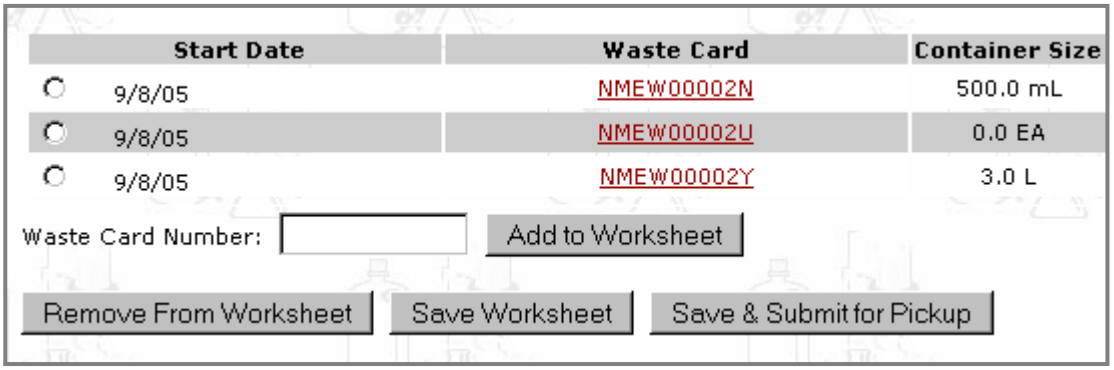
b. Click Reprint Waste Card PDF to view and print the selected Waste Cards in PDF file format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

4. When the Waste Cards have been added to your Worksheet, your Pickup Worksheet will look like the following example on page [WM200]:



You can now manage your Pickup Worksheet.

4.4.3 Manage the Pickup Worksheet

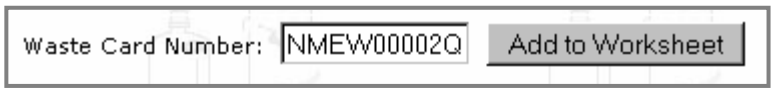


There are three functions to manage your Pickup Worksheet:

1. ***Add to Worksheet***
2. ***Remove from Worksheet***
3. ***Save Worksheet***

Add to Worksheet

a. To add one Waste Card to your Worksheet, scan or enter the Waste Card barcode number into the following data field:



b. Click Add to Worksheet to add this Waste Card to your Worksheet.

Remove From Worksheet

a. Click a radio button next to a Start Date to select a Waste Card.

b. Click Remove From Worksheet to remove this Waste Card from your Worksheet.

Save Worksheet

This function permits you to save your Pickup Worksheet for later improvements, updates, and additions.

a. Click Save Worksheet to access this function.

b. The text *New pickup worksheet was created successfully.* will appear at the top of page [WM200]:

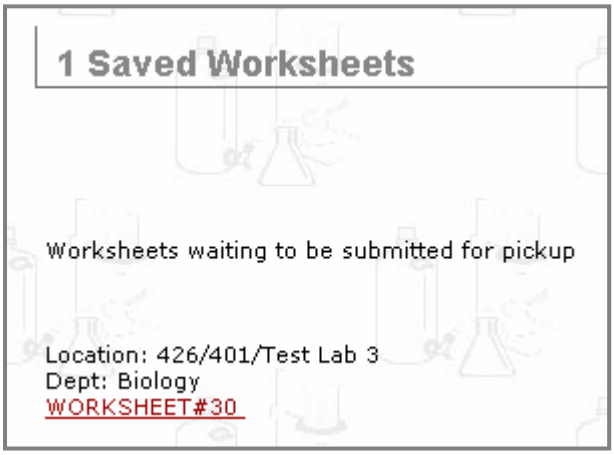
c. To retrieve this saved Pickup Worksheet, click the Waste button at the top of the CHEMATIX™ screen:

d. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

e. Scroll down to

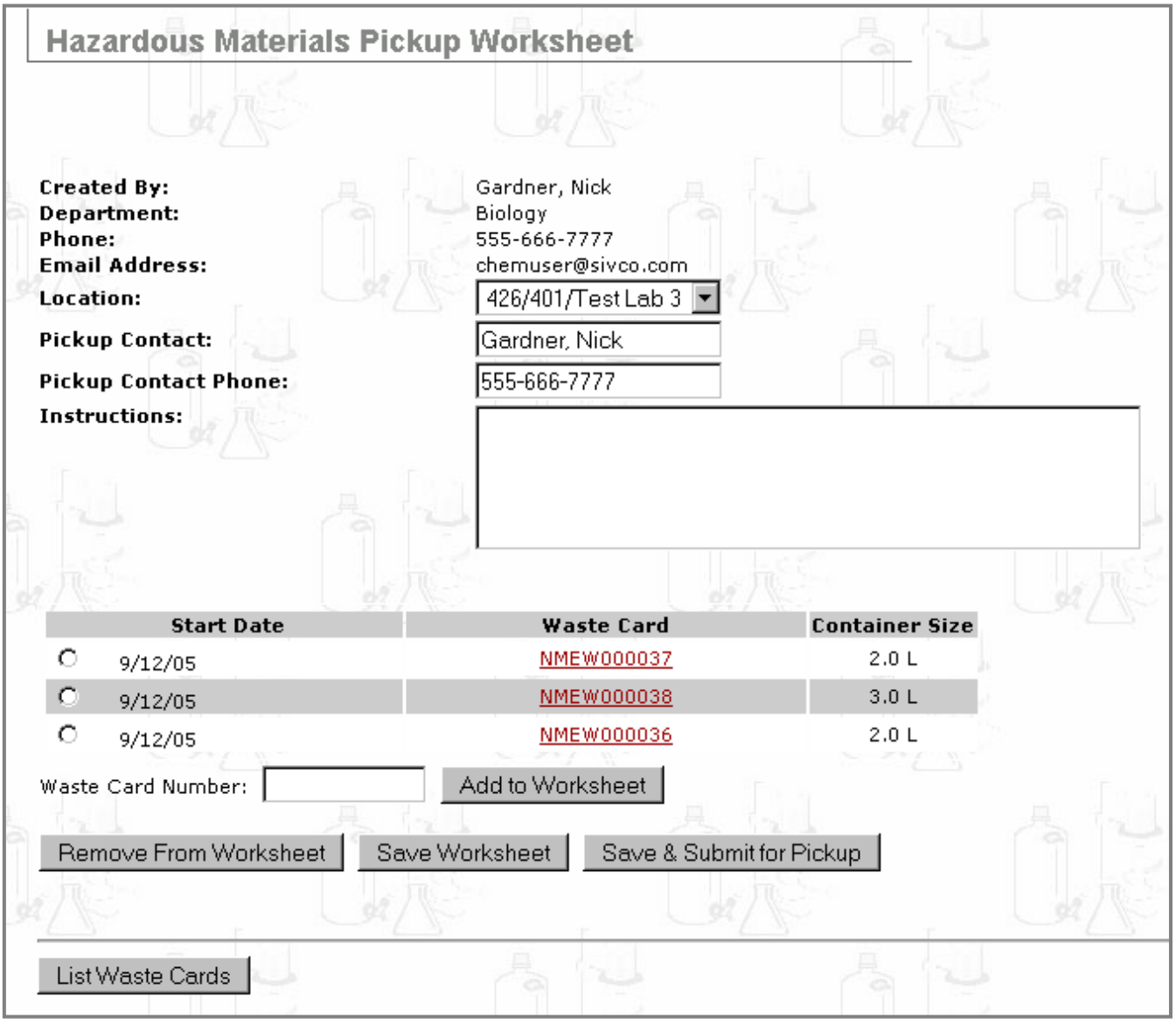
f. Click on the link 1 Worksheet Waiting To Submit for pickup .

g. You will now be transferred to page [WM126]:



h. Click on the link WORKSHEET#30 , for example:

i. You will now be transferred back to page [WM200] where you can continue to edit your saved Pickup Worksheet:



NOTE: If you save a worksheet in a CHEMATIX™ session but not submit that worksheet for pickup (See section **4.4.4 Save & Submit the Pickup Worksheet** below), it will appear on the on the CHEMATIX™ home screen on your next login to as a safety reminder that you have waste that has not yet been submitted for pickup.

4.4.4 Save & Submit the Pickup Worksheet

1. On page [WM200], correct or modify the Pickup Worksheet's **Location:**, **Pickup Contact:**, and **Pickup Contact Phone:**.

2. In the **Instructions:** data field, write the pickup instructions for the Hazardous Material pickup person (for example, when the lab will be open, who to contact to pick up the waste containers, and any special instruction, etc.).

3. Click Save & Submit for Pickup when you are satisfied with all of the information on the Pickup Worksheet.

4. Your Pickup Worksheet has been submitted to your institution's Department of Environmental Health & Safety for processing.

4.4.5 View Submitted Pickup Worksheets

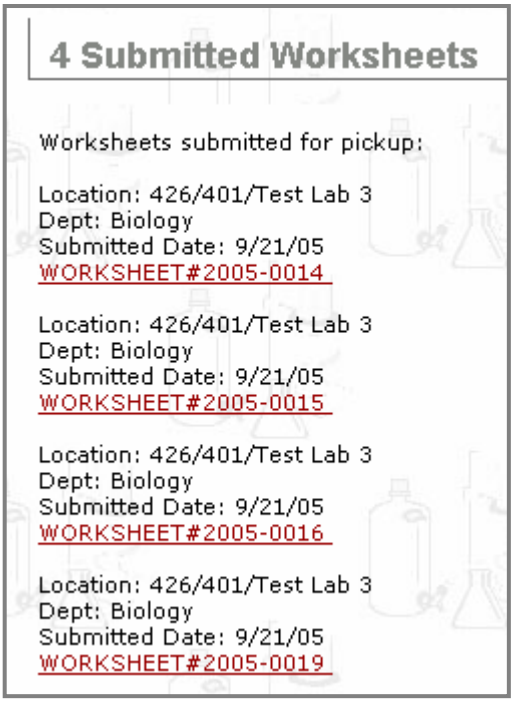
1. To View Worksheets submitted for Pickup, click the Waste button at the top of the CHEMATIX™ screen:

2. You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

3. Scroll down to

4. Click on the link Worksheets Submitted for Pickup .

5. You will now be transferred to page [WM125]:



6. Click on the Worksheet # link to view any of these Worksheets (for example, WORKSHEET#2005-0014).

4.5 List Worksheets Submitted for Pickup

This function permits users to view and print the Worksheets submitted for pickup.

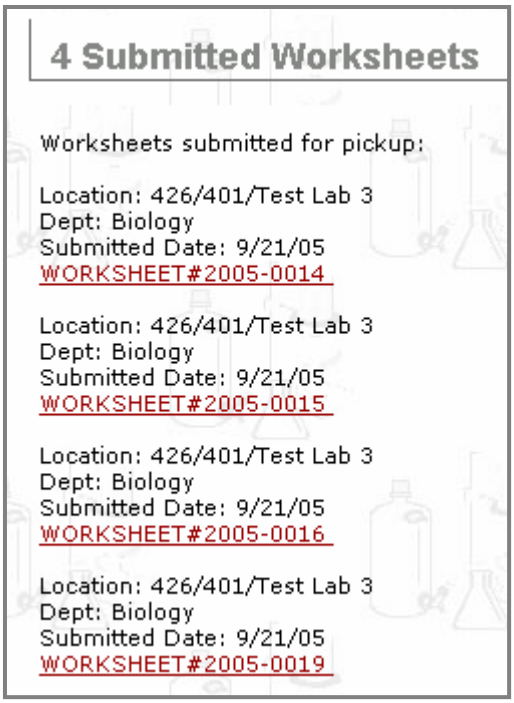
1. To access this functionality, click the Waste button at the top of the CHEMATIX™ screen:

You will now see the opening page for Waste Management [WM402]. (The availability of this functionality is optional and determined by your institution).

2. Scroll down to

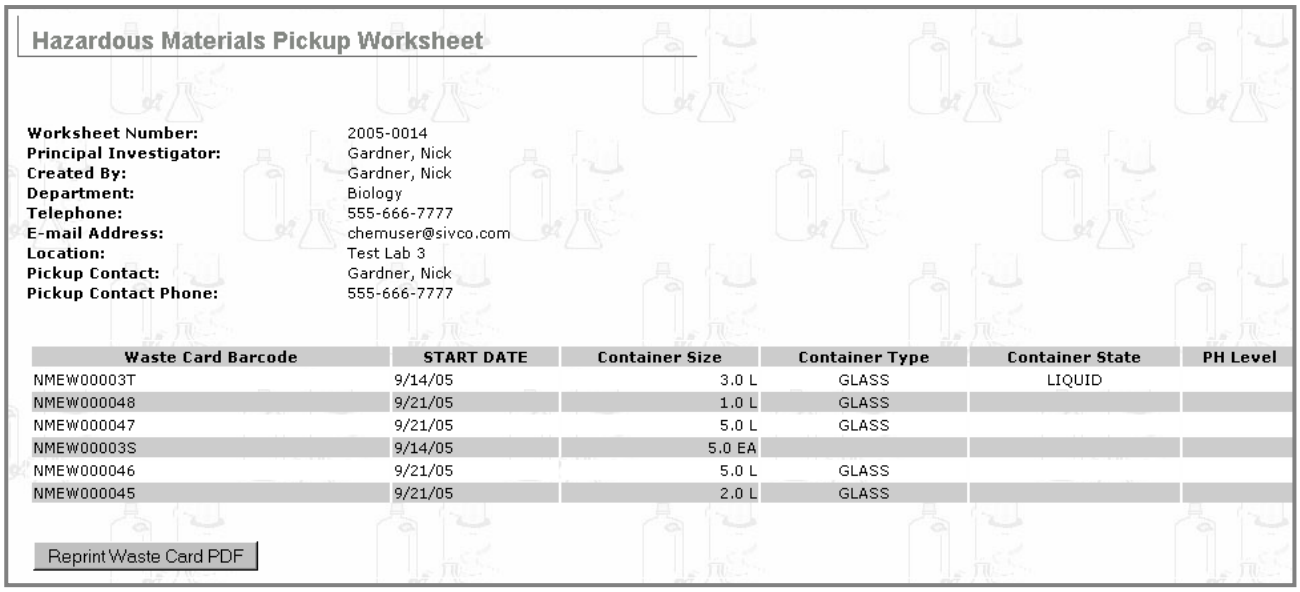
3. Click on the link Worksheets Submitted for Pickup .

4. You will now be transferred to page [WM125] where a list of all submitted Worksheets will be displayed:



5. Click the WORKSHEET# link (for example, WORKSHEET#2005-0014).

6. The contents of the Worksheet will now appear on page [WM128], for example:



Hazardous Materials Pickup Worksheet

Worksheet Number: 2005-0014
Principal Investigator: Gardner, Nick
Created By: Gardner, Nick
Department: Biology
Telephone: 555-666-7777
E-mail Address: chemuser@sivco.com
Location: Test Lab 3
Pickup Contact: Gardner, Nick
Pickup Contact Phone: 555-666-7777

Waste Card Barcode	START DATE	Container Size	Container Type	Container State	PH Level
NMEW00003T	9/14/05	3.0 L	GLASS	LIQUID	
NMEW000048	9/21/05	1.0 L	GLASS		
NMEW000047	9/21/05	5.0 L	GLASS		
NMEW00003S	9/14/05	5.0 EA			
NMEW000046	9/21/05	5.0 L	GLASS		
NMEW000045	9/21/05	2.0 L	GLASS		

Reprint Waste Card PDF

You have two choices on this page:

1. Print this page.

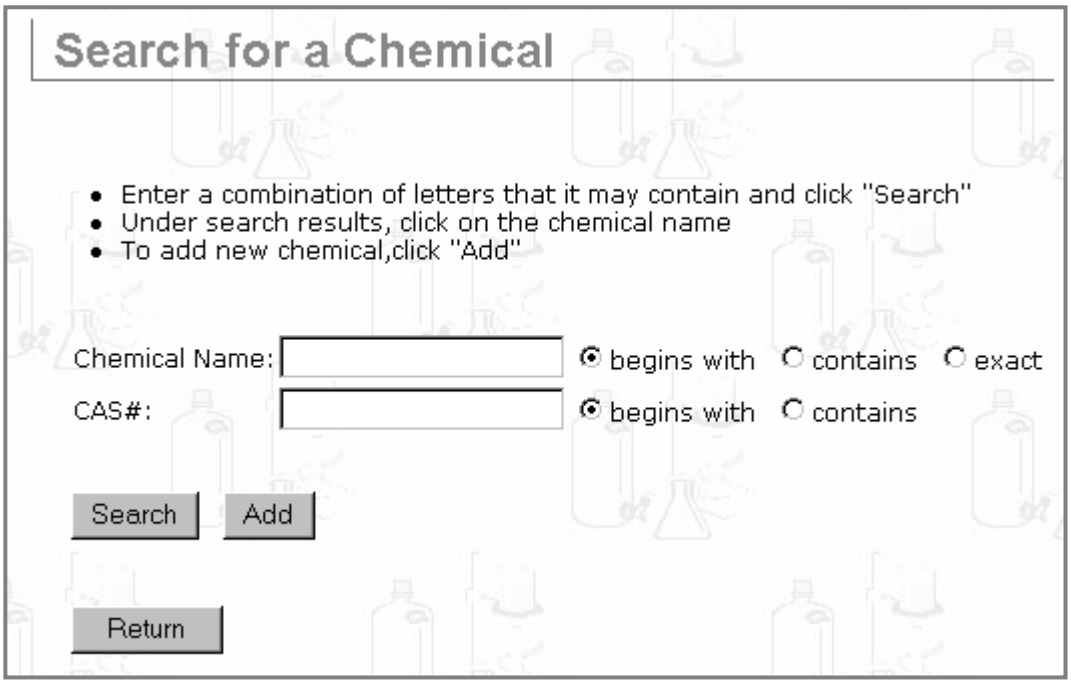
To print this page, click File on your browser. On the drop-down menu, scroll down to Print... and click Print... . You can now print this page through your browser.

2. Print all Waste Cards

Click Reprint Waste Card PDF to view and print all of the Waste Cards listed on this page in PDF format. See **Appendix B**. for details on how to print a PDF file from Adobe Reader.

Appendix A: How to Add a Chemical to CAD

The search for a chemical name or CAS# usually begins with a page that looks like this (in this example, page [WM114]):



When searching for a chemical in CAD, it may be possible that the chemical is not listed in CAD for two reasons: either the inputted name or CAS# is incorrect or the chemical name is new to CAD.

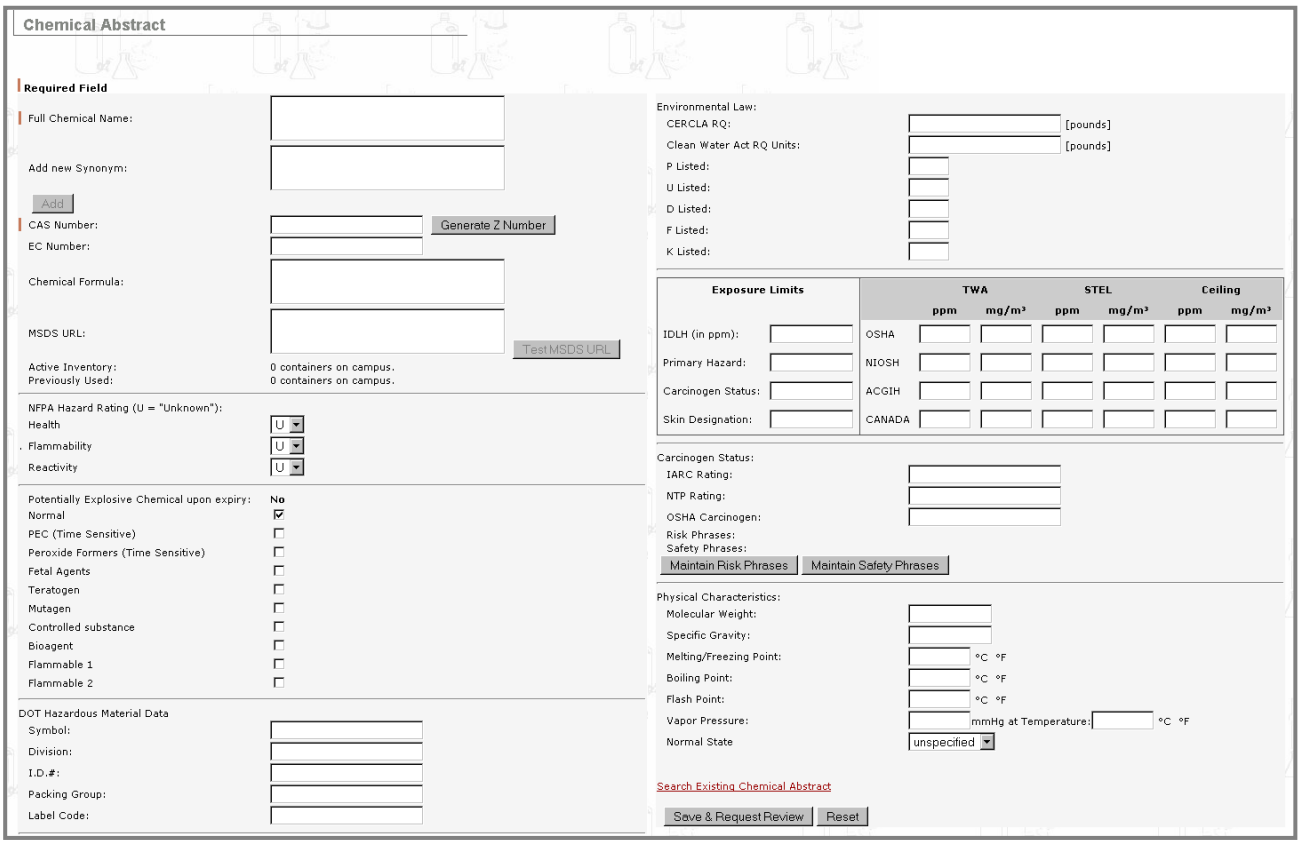
First, check and correct any typos. If your inputted chemical name and CAS# is correct, you can add a new entry to CAD.

NOTE:

All new CAD entries are flagged for review and approval by your Department of Environmental Health & Safety.

1. To add a new entry to CAD, click Add on a page similar to page [WM114]. Alternatively, click Add a Chemical on a page similar to page [IM535].

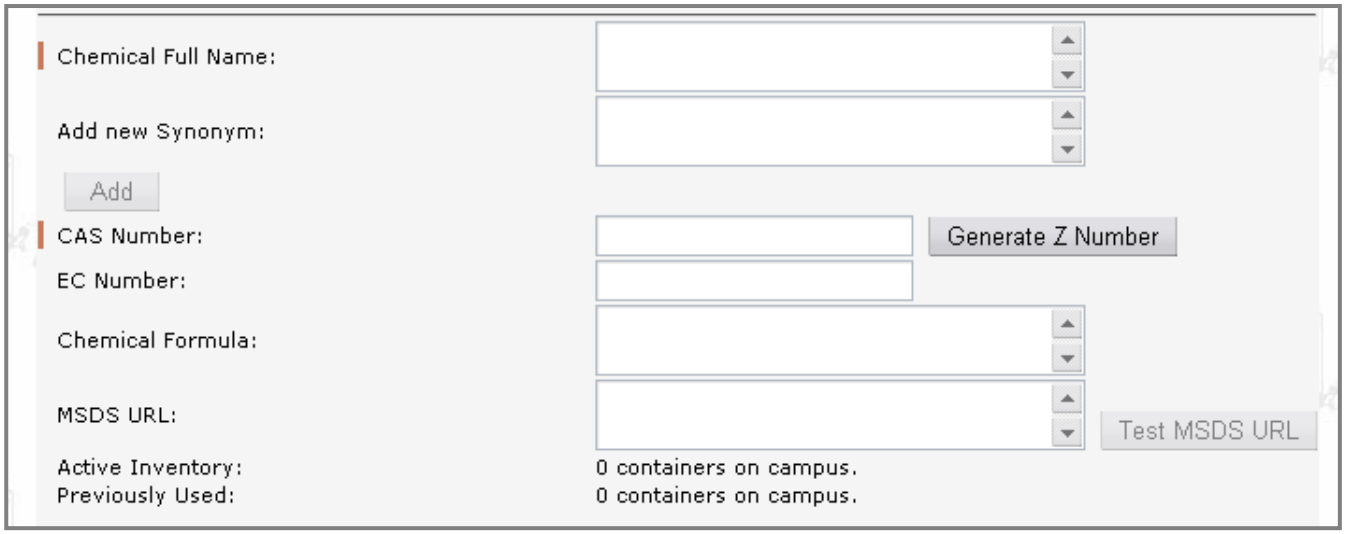
2. You will now be transferred to page [IM572] where you can create a new CAD listing.



In creating your Chemical Abstract, all Required Fields have a bar next to them, as in the following example:

Step 1: Enter Chemical Information

1. Scroll down to the following data fields:



2. Enter the Chemical Full Name:.

Alternately, you can scroll down to the link Search Existing Chemical Abstract to search your chemical in CAD. This will permit you to enter the Chemical Full Name:, CAS Number:, and Chemical Formula: (for example) from the Chemical Abstract.

3. If there is a synonym for the full chemical name, enter that into the Add new Synonym: field.

4. Click Add to add this synonym to your full chemical name.

5. Each chemical in CHEMATIX™ must have a CAS#, so that every chemical can be linked without ambiguity to CAD.

6. Enter the CAS Number:.

7. If your chemical has no CAS#, click Generate Z Number. A pseudo-CAS# will now be generated by CHEMATIX™ (for example, Z00078067). In CHEMATIX™, these pseudo-CAS#'s are called Z-numbers, as in the following example:

8. Enter the EC Number:.

EC Numbers (Enzyme Commission Numbers) are a numerical classification scheme for enzymes, based on the chemical reactions that they catalyze.

9. Enter the Chemical Formula:.

10. Enter the MSDS URL:.

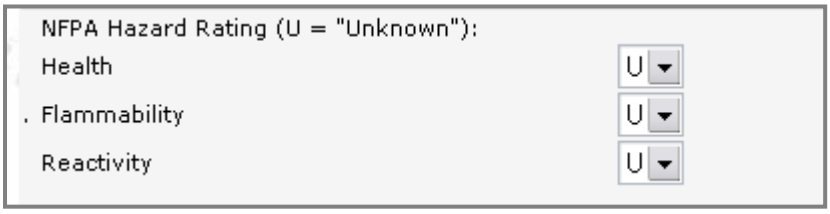
An **MSDS** (Material Safety Data Sheet) contains details of the hazards associated with a chemical and gives information on its safe use.

A **URL** (Uniform Resource Locator) is a web address where more information can be obtained about this chemical. Enter the web site for the MSDS for this chemical.

11. Click Test MSDS URL to test the MSDS web address. Through time, many web addresses change. Make sure that your MSDS is current.

Step 2: NFPA Hazard Rating

Scroll down to the following drop-down menus and select the appropriate hazard ratings:

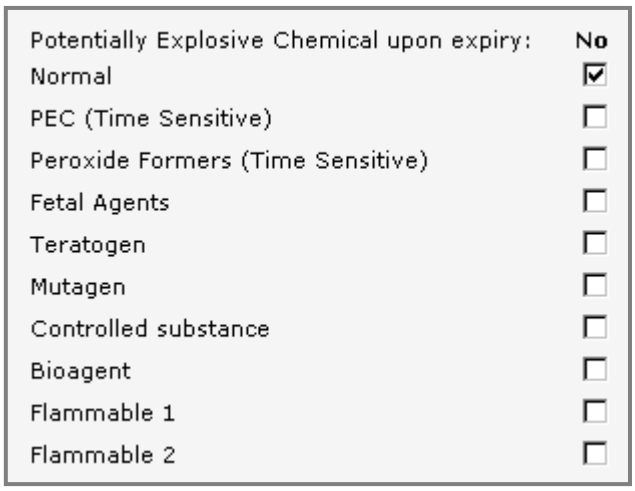


NFPA (the National Fire Protection Association) is the leading authoritative source of technical background, data, and consumer advice on fire protection, problems, and prevention. The NFPA is responsible for classifying substances according to their fire and explosion hazard. In the NFPA drop-down menus, U = Unknown. 0 is the least severe hazard while 4 is the most severe hazard. The exact guidelines by which you can place a chemical into one of these categories are available in the NFPA standard. The NFPA homepage is: **http://www.nfpa.org**.

Step 3: General Hazards including PEC

1. Scroll down to the following click boxes to indicate general hazards:

This list is institutional specific and is used as an example only. Contact your CHEMATIX™ System Administrator for details.



2. Click the click boxes ☑ for all the hazards that apply.

The default is Normal which means that there is no "unusual" hazard with this chemical. However, all chemicals should be treated with care and all safety regulations observed.

PEC (Potentially Explosive Chemicals). Most chemicals that are used in research and teaching laboratories are stable and non-explosive at the time of purchase. Over time, some chemicals can oxidize, become contaminated, dry out, or otherwise destabilize to become Potentially Explosive Chemicals (for example, isopropyl ether, sodium amide, and picric acid). PEC's are particularly dangerous because they may explode if they are subjected to heat, light, friction, or mechanical shock.

Peroxide Formers (= peroxidizable materials) can form peroxides in storage, generally when in contact with the air. These peroxides present their most serious risk when the peroxide-contaminated material is heated or distilled, but they may also be sensitive to mechanical shock. Many of these are time sensitive.

Fetal Agents are those chemical substances that can affect the health and well-being of the fetus.

Teratogens are chemicals that may cause non-inheritable genetic mutations or malformations in the developing fetus (= birth defects). Teratogens may halt the pregnancy outright.

Mutagens are agents that change the hereditary, genetic material that is a part of every living cell. Such mutations are probably an early step in the sequence of events that ultimately lead to the development of cancer.

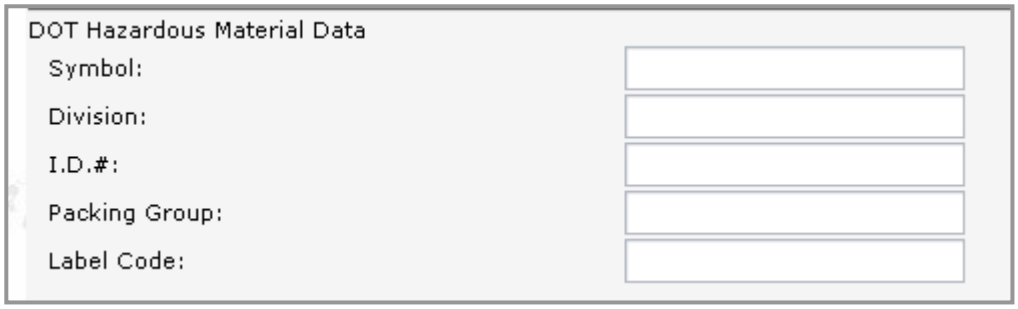
Controlled substances are drugs or chemical substances whose possession and use are regulated under the Controlled Substances Act.

Bioagents (= biological agents) are viral, bacterial, fungal, or parasitic substances that cause disease and/or illness.

Flammable 1 and **Flammable 2** are institution specific and defined by your institution's' CHEMATIX™ administrator. For details, contact your institution's CHEMATIX™ System Administrator for details.

Step 4: DOT Hazardous Material Data

Scroll down to the next area and fill in the appropriate fields for DOT Hazardous Material:



The **DOT**'s (Department of Transportation) Office of Hazardous Materials Safety has, as its mission, the minimization of the risks to life and property inherent in the commercial transportation of hazardous materials. The DOT homepage is at **http://hazmat.dot.gov**.

Step 5: Environmental Law

Scroll down and fill in the following fields regarding Environmental Law:

CERCLA RQ (the Comprehensive Environmental Response, Compensation, and Liability Act – Reportable Quantity). This is the maximum quantity of a CERCLA hazardous substance that can

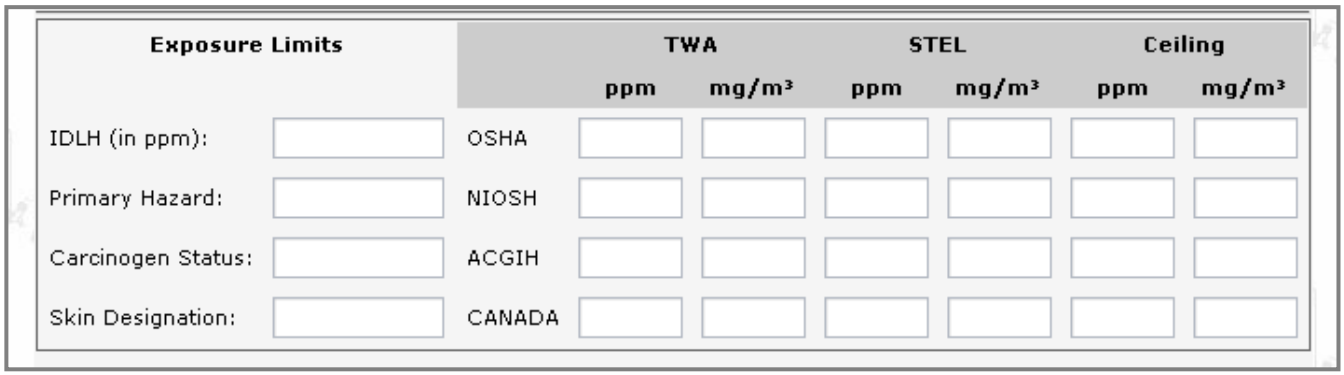
be released into the environment without notification to the EPA (the Environmental Protection Agency). Each CERCLA hazardous substance has an individual RQ assigned by the EPA. The CERCLA RQ's range from one pound to 5,000 pounds.

The **Clean Water Act** (CWA) is the cornerstone of surface water quality protection in the United States. The CWA sets water quality standards for all contaminants in surface waters. RQ Units (Reportable Quantity Units) are the maximum quantity of a pollutant from a point source that can be released into surface waters without notification to the EPA (the Environmental Protection Agency).

The **EPA** (the Environmental Protection Agency) is the US federal agency responsible for regulating environmental hazards. The EPA has predetermined that certain wastes are hazardous. These wastes are classified as P Listed, U Listed, D Listed, F Listed, and K Listed, among others. A laboratory chemical becomes a "waste" when you no longer intend to use it, regardless of whether or not it has been used or contaminated. The EPA homepage is: http://www.epa.gov.

Step 6: Exposure Limits

Scroll down to the next group of data fields. These deal with exposure to hazardous substances. Fill in the appropriate fields:



IDLH (Immediately Dangerous to Life or Health) refers to a concentration, formally specified by a regulatory value, and defined as the maximum exposure concentration of a given chemical in the workplace from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects. This value is normally referred to in respirator selection.

Primary Hazard refers to the major or most important reason why this chemical is hazardous.

Carcinogen Status is the likelihood for a chemical to cause cancer in humans.

Skin Designation refers to the danger of a chemical substance to be absorbed through the skin.

TWA (Time Weighted Average) is a term used in the specification of Occupational Exposure Limits (OEL's) to define the average concentration of a chemical to which it is permissible to expose a worker over a period of time, typically 8 hours.

STEL (Short Term Exposure Limit) is the maximum permissible concentration of a material, generally expressed in ppm in air, for a defined, short period of time (typically 5 or 15 minutes, depending upon the country) that a person can be exposed to a certain chemical. This "concentration" is generally a time-weighted average (TWA) over the period of exposure. These values, which may differ from country to country, are often backed up by regulation and therefore may be legally enforceable.

Ceiling Level or **Ceiling Value** is the maximum permissible concentration of a hazardous material in the working environment. This level should not be exceeded at any time. It is usually (but not invariably) set somewhat above the relevant time-weighted average for the chemical.

OSHA (Occupational Safety and Health Administration) is a part of the U.S. Department of Labor. OSHA's mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA homepage is: http://www.osha.gov.

NIOSH (The National Institute for Occupational Safety and Health) is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. The NIOSH website is: http://www.cdc.gov/niosh/homepage.html.

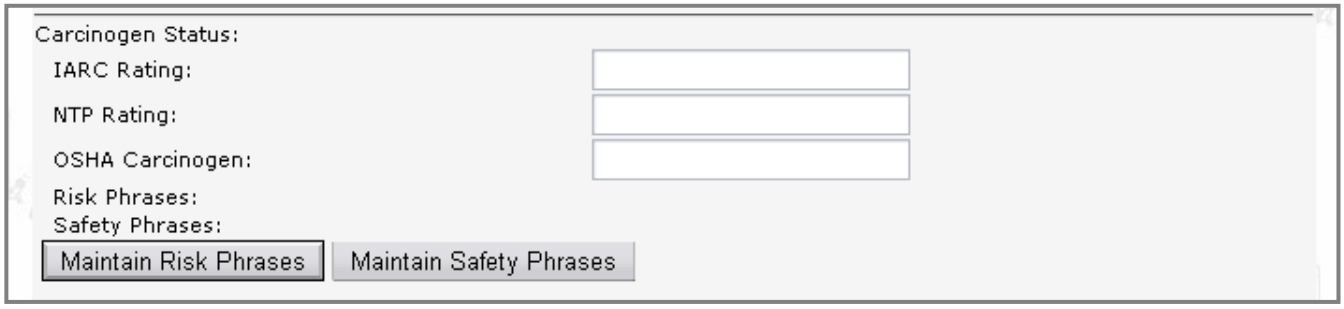
ACGIH (The American Conference of Governmental Industrial Hygienists) is a member-based organization and community of professionals that advances worker health and safety through education and the development and dissemination of scientific and technical knowledge. One of its principal tasks is to recommend TLV's for workplace exposure to chemicals. The ACGIH homepage is: http://www.acgih.org/home.htm.

TLV (Threshold Limit Value) is the maximum permissible concentration of a material, generally expressed in parts per million in the air for some defined period of time (often 8 hours, but sometimes for 40 hours per week over an assumed working lifetime).

Canada refers to Canadian government regulations.

Step 7: Carcinogen Status

The following data fields deal with the status of your chemical as a carcinogen. A carcinogen is a chemical that causes or that may cause cancer.



IARC (International Agency for Research in Cancer) is part of WHO (the World Health Organization). The IARC coordinates and conducts research on the causes of human cancer, the mechanisms of carcinogenesis, and develops scientific strategies for cancer control. The IARC home page is: http://www.iarc.fr.

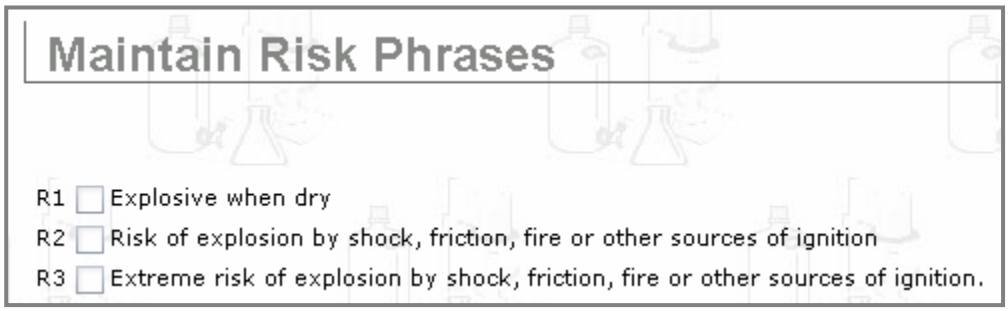
NTP (the National Toxicology Program) tests chemicals and reviews evidence relating to the possibility that a chemical may act as a carcinogen. The NTP identifies toxicants and tries to understand and minimize the potential impacts of their exposures on human health. The NTP home page is: http://ntp-server.niehs.nih.gov.

OSHA (Occupational Safety and Health Administration) is a part of the U.S. Department of Labor. OSHA's mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA homepage is: http://www.osha.gov.

Step 8: Risk Phrases

The EU (European Union) requires risk phrases on all MSDS's. That is why users may see them listed. The Risk Phrases indicate only the risk of the material, not the safety precautions users need to take.

1. Scroll down and click Maintain Risk Phrases to associate risk phrases with this chemical. Clicking this button will transfer you to page [IM582]:



2. There are 68 risk phrases from which to choose. Click the click boxes ☑ for all phrases that apply.

3. Click Submit to associate the selected risk phrases with your chemical.

4. Click Reset to clear this form of all checked boxes. You can now begin to re-select the appropriate risk phrases.

Step 9: Safety Phrases

The EU (European Union) requires safety phrases on all MSDS's. That is why users may see them listed. The Safety Phrases indicate the safety precautions users need to take, not the risk of the material.

1. Click Maintain Safety Phrases to associate safety phrases with this chemical. You will be transferred to page [IM583]:

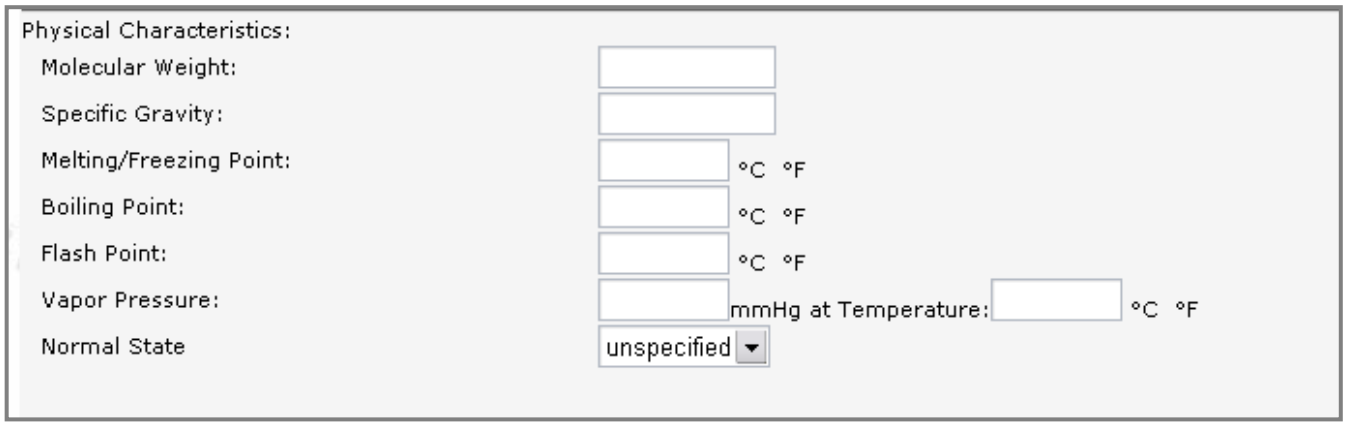
2. There are 64 safety phrases from which to choose. Click the click boxes ☑ for all phrases that apply.

3. Click Submit to associate the selected safety phrases with your chemical.

4. Click Reset to clear this form of all checked boxes. You can now begin to re-select the appropriate safety phrases.

Step 10: Physical Characteristics

Enter the physical characteristics of your chemical into the final group of data fields:



Step 11: To Finish

When you have finished filling in the appropriate Chemical Abstract fields, scroll down to the bottom of the page where you will see the following buttons:

You now have two options:

Option 1: Reset

1. Click Reset to clear this form of all inputted data, except for the data that you uploaded from the Chemical Abstract page [IM573] (for example, the Chemical Full Name:, CAS Number: and Chemical Formula: fields).

2. You can now begin to fill in the Chemical Abstract form again.

3. Go back to **Step 1. Enter Chemical Information** section of this instruction manual for help in completing the empty fields on this Chemical Abstract page [IM572].

Option 2: Save & Request Review

1. Click Save & Request Review to save the data entered in this form and to request a review of this data by your institution's Department of Environmental Health & Safety.

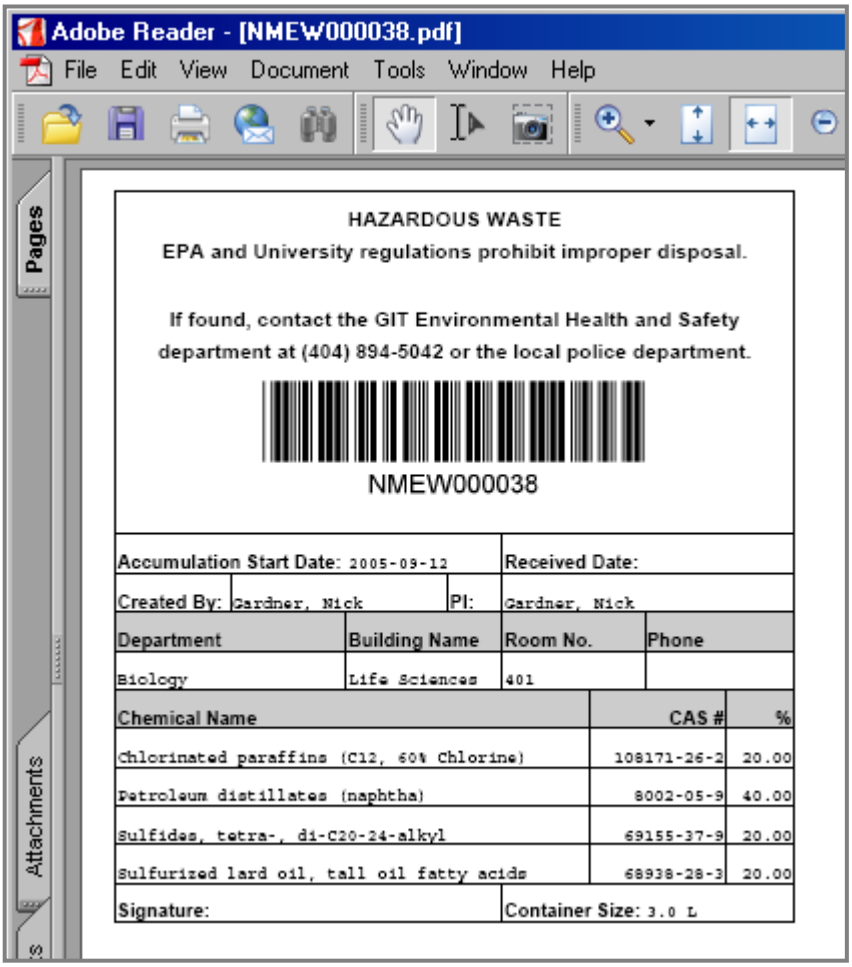
   NOTE: All newly created Chemical Abstracts in CAD will be flagged for review by your institution's Department of Environmental Health & Safety.

2. You will now be transferred to page [IM111]:

3. Your new CAD entry has been created successfully.

Appendix B: How to Print a PDF File from Acrobat Reader

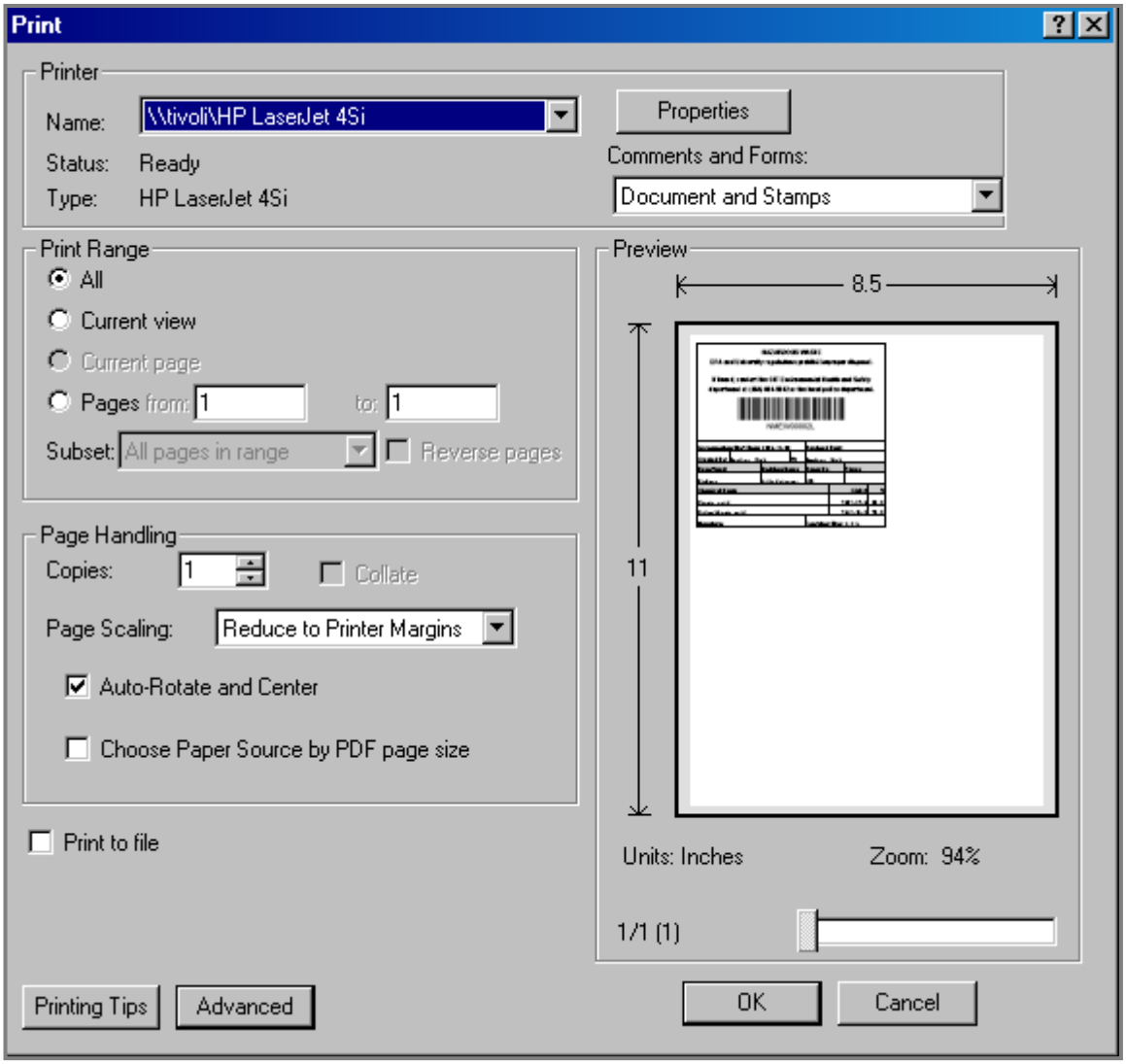
1. After the appropriate button is clicked, the PDF file will open in the Adobe Reader window, for example:



2. To print, click the printer icon in the menu bar at the top of the Adobe Reader page.

   Alternately, click File in the menu bar at the top of the screen and choose Print... from the pull-down menu.

3. The print popup window will now appear (as in the following example from Windows):



4. Adjust the resolution of your printer to 600 dpi or better. Depending on your printer, this is usually “Best” or “Normal”. This quality is a better option than “Draft” or a lower resolution.

5. Select your printer properties and other options.

6. Click OK to begin printing or click Cancel to abort.

7. You have now finished printing a PDF file in Adobe Reader.

Appendix E
Environmental Safety Suite

Appendix E: Environmental Safety Suite

SIVCO has taken on the responsibility of protecting human health and the environment through the ongoing development of software products for the environmental health and safety industry. All components of the Environmental Safety Suite are designed as web-enabled, enterprise applications built upon J2EE technology. This allows each solution to be easily integrated with other systems and for all solutions to be fully implemented in conjunction as one complete Environmental Safety Enterprise Solution. Each innovative solution within the Environmental Safety Suite also has the unique ability to be implemented and operated individually, providing precise solutions for specific mandates relating to Chemical Management, Bioagent Material and Research Permit Management, OSHA Reporting, Hazardous Training Management, etc.

Each of the **Environmental Safety Suite** software products is:

- scalable
- fully customizable
- able to integrate with existing authentication systems
- fully integrated with **CHEMATIX™** and the each of the other **Environmental Safety Suite** applications

We invite you to review the currently available software solutions as well as the upcoming products currently under development. If protecting the environment and ensuring community safety according to governmental mandates through accurate reporting, complete record management and comprehensive inventory control of all scientific materials throughout their entire system life-cycle is your business, let SIVCO assist you in meeting your needs with the most innovative and comprehensive suite of Environmental Safety Solutions available.

SIVCO's **Environmental Safety Suite** features the following innovative products:

BIOLOGISTIX™

BIOLOGISTIX™ is at the forefront of research management by providing the most rigorous and robust environment in which to track controlled substances and maintain compliance with all governmental regulations and mandates. Widely considered the premier solution on the market today, **BIOLOGISTIX™** provides a comprehensive approach to chemical management throughout the entire lifecycle of chemical, biological, radioactive and hazardous substances within large-scale university and corporate research environments.

Comprised of seven major management modules, **BIOLOGISTIX™** easily facilitates:

- Biological Material Tracking
- Inventory Management and Control
- Biosafety Permit and Inspection Governance
- Biosafety Labs and Cabinet Regulation
- Resource Management and System Security

The ultimate goal is to provide universities and research firms with the ability to:

- make bioagent inventory management an effortless and simple process by reducing the amount of labor and frustration involved in tracking biological material inventory
- fully govern the issuance and management of biosafety permits for biological substances
- efficiently manage biosafety labs, cabinets, autoclave licensing and inspections
- empower users with information presented in a well organized, concise and highly usable manner
- reduce overall labor, administration, paper and surplus costs resulting in significant annual savings

- readily facilitate regulatory compliance by providing the frame work in which all governing agencies can monitor and control biological inventory

With broad functionality to facilitate Biological Material Tracking, Inventory Management, Biosafety Permit and Inspection Governance, Biosafety Labs, Cabinet Regulation and Resource Management, **BIOLOGISTIX™** is at the forefront of research management by providing the most rigorous and robust environment in which to track controlled substances and maintain compliance with governmental regulations and mandates. The main modules include:

Biological Material Inventory Management

Biological Material Inventory Management is the essential management module, which allows **BIOLOGISTIX™** to store detailed information about every regulated substance in the system. This detail provides the foundation for regulatory compliance, environmental safety, and inventory, research, and budget control. All substances are tracked via unique identifiers associated with approved biosafety permits, research project approval and responsible owner certification. Storage location including laboratories, biosafety cabinets, freezers, autoclaves and specific shelves are also associated with biological inventory. A complete history of each regulated agent is maintained from point of entry to elimination as waste. This module also provides the big picture view of biological material tracking and the ability to manage various aspects of regulated laboratory inventory of controlled substances. A multitude of user-configurable reports and views can be generated to view specific location inventories, hazardous material counts, historical profiles, inspection histories, etc. The scope of this module includes:

- tracking of biological material description, bioagent class, risk group, select agent status, associated strain, associated insert(s), container size, origin, specimen source, responsible owner, storage location (shipping address, building name and number, laboratory room number, specific storage location (cabinet, shelf, freezer, etc.), vendor (manufacturer) name, purchase (receipt) date and quantity
- ability to associate bioagent, principal investigator, and location to bioagent profiles from pre-populated drop-down lists
- maintenance of a master list of regulated bioagents by Environmental Health and Safety with associated class, description, strain and insert(s)
- instant access to real-time inventories for every campus location containing biological material inventory tracked by the system, complete with location address and responsible owner
- comprehensive and user-defined report generation of inventory summaries for campus-wide, departmental and individual laboratory bioagent inventory records by associated personnel (administrators, faculty, staff, graduate students, etc.) and Environmental Health and Safety regulators searchable by item description, bioagent class, risk group and selected agent status
- pre-loaded list of biological material supply vendors and manufacturers available as a drop-down list for association with new and/or existing inventory
- ability of users to associate biological agents with new manufacturers/vendors with automatic addition of new entries to existing lists
- strict control of bioagent inventory through mandatory association with biosafety permits, approved research projects, licensed biosafety cabinets and training certification for users and principal investigators.

Biosafety Permit Control

Biosafety Permit Control allows regulatory officials to comprehensively oversee the issuance, review, and regulation of biosafety permits required for the acquisition, control, and storage of regulated biological substances for use in scientific research. Biosafety Committee management as related to biosafety permits is also facilitated. Some of the highlights include:

- tracking of all biosafety permits according to permit number, permit type, principal investigator, approved bioagents (bioagent class, risk group and selected agent status), associated research project, associated usage locations, storage location, approved users, animals involved in research (IACUC number), associated biosafety cabinets, approval date, expiry date, permit status, description, associated amendments, contingencies and modifications, review date, inspection date, biosafety committee actual review date and audit frequency
- capacity to sort and print biosafety permit reports based on permit type, permit status, review date, biosafety committee actual review date, expiration date, principal investigator, bioagent description, bioagent class, risk group and select agent status
- ability to add principal investigators, permit types, permit status, bioagents, locations, users and research animals to biosafety permits from pre-populated drop-down lists
- ability of biosafety committee members to modify, amend and add contingencies to permits
- maintenance of all biosafety committee members as users in the system
- capacity to generate biosafety committee agendas from existing and newly submitted biosafety permits
- email notification to all biosafety committee members of upcoming agendas with references to be reviewed and/or approved

Biosafety Cabinet Regulation

Biosafety Cabinet Regulation consists of complete management over the licensing and inspections of biosafety cabinets, autoclaves and laboratories used for the proper handling of biological materials. Detailed information about each cabinet registered in the system as well as associated inspection history is captured according to:

- biosafety cabinet profile, including cabinet ID, responsible principal investigator(s), permit number, permit expiry, serial number, make/model, manufacturer, location, class, UV light status and cabinet description
- ability to associate location, manufacturer, make/model and class with biosafety cabinet profile from pre-populated drop-down lists
- biosafety cabinet inspection profile, including inspection date, inspector name, UV light reading, approved status and comments/recommendations
- control of biosafety cabinet master list by Environmental Health and Safety personnel
- user-configurable report generation of biosafety cabinet information sortable by location, principal investigator, permit expiry, class, status, inspection date and permit number
- comprehensive biosafety cabinet inspection history report generation

Resource Management

Resource Management provides and restricts access to all levels of the **BIOLOGISTIX™** system. User profiles are created for varying levels of access including individual users, departments, regulators and committee members. User administration is constructed hierarchically to ensure maximum system security. The highlights of this module are:

- username and password access to system
- hierarchical chain of command system security with broadest range of access and control granted to primary levels
- superuser administration with ability to add/modify user profile and restrict access to system
- maintenance of emergency contact information including name and phone number
- departmental (or multiple departmental) association with users and locations
- designation of principal investigators responsible for bioagent inventory and locations
- designation of Active Permit Authority status for all users, which grants / restricts viewable inventory privileges and outlines specific privileges regarding the handling of regulated biological materials and proper waste disposal

- complete management of all biological material handling and safety training, including class enrolment. scheduling, certified status and access authority
- accommodation of different levels of security for administrative personnel
- access to all areas of the system governed by specific administrative personnel
- emergency response team access to all biological inventory and hazardous materials in critical situations, with the ability of transmitting biological inventory information to handheld web-enabled devices of responders
- ability for all users to modify personal profile and password
- ability to integrate with campus authentications system

Radioactive Material Manager

Designed to comprehensively track and manage radioactive material purchase, possession, use and disposal, this innovative solution has full functionality to:

- universally track detailed profiles of radioactive material inventory, equipment and radiation emitting devices
- manage online submission of authorization requests and isotope permits required for the procurement, possession, use and disposal of radioactive substances
- associate all radioactive materials inventory with approved protocols, possession limits, requisitions, required user training, equipment certification and lab registration
- comprehensively track and manage generation and disposal of all radioactive waste
- maintain detailed profiles, associated registration information and inspection histories for equipment, devices and approved laboratories in which radioactive materials will be handled and stored
- manage inspections and incidents for laboratories, storage devices, leak tests and instrument calibration with maintenance of detailed histories
- control possession limits of radioactive materials for PIs, labs, buildings and departments through association of physical inventory with all isotope requisitions pending approval
- create a broad variety of standard and ad-hoc reports for radioactive material inventory, isotope permits and possession authorizations, equipment, registered labs, waste accumulation and disposal, user training profiles and possession limits
- maintain detailed training information for users requiring certification to possess and use radioactive materials
- track contamination, area monitoring and leak tests
- facilitate procurement of radioactive materials with strict, hierarchical approval process and association with possession and use permits
- ability to interface with existing financial management systems to process radioactive material order information

Online Accident Reporting System (OARS)

The **Online Accident Reporting System (OARS)** has been developed to make reporting easier, provide consistency in reporting data, assess trends and ultimately contribute to injury prevention. Originally developed in conjunction with leading research institutions, the intention of the system is to electronically automate the process of reporting work-related injuries and illnesses on campus through an offering of mandatory forms via online access.

OARS features:

- online submission of accident and near miss reporting
- the processing and updating of OSHA forms
- the ability to track, review and modify existing reports
- access for Environmental Health & Safety personnel to review and modify submitted reports
- the processing of the OSHA 300 log form
- the processing of OSHA 300 summary Worksheets
- the ability to connect with university ID and authentication systems
- e-mail notification for report submission and review

Accurate and timely reporting of work-related injuries, illnesses and near misses is critical to providing a safe and healthful work environment. **OARS** has been developed to comply with the new OSHA record keeping rules.

Scientific Material Questionnaire

An innovative web-enabled application designed to allow Environmental Health & Safety personnel to quickly assess detailed scientific material inventory according to researcher, research protocol, laboratory, risk level, location, etc., in compliance with governmental regulations and mandates.

Training Records Manager

The Training Records Management System provides web-enabled access to all employee and student training records pertaining to all required certifications necessary to ensure community and personal safety as well as safe work practices.

This comprehensive system will provide user access to existing certification levels, pending expiry dates, training course descriptions, specific employment requirements, online class sign-up, and training history in compliance with local, state and federal requirements for radiation, chemical, biological, hazardous waste, and environmental safety.