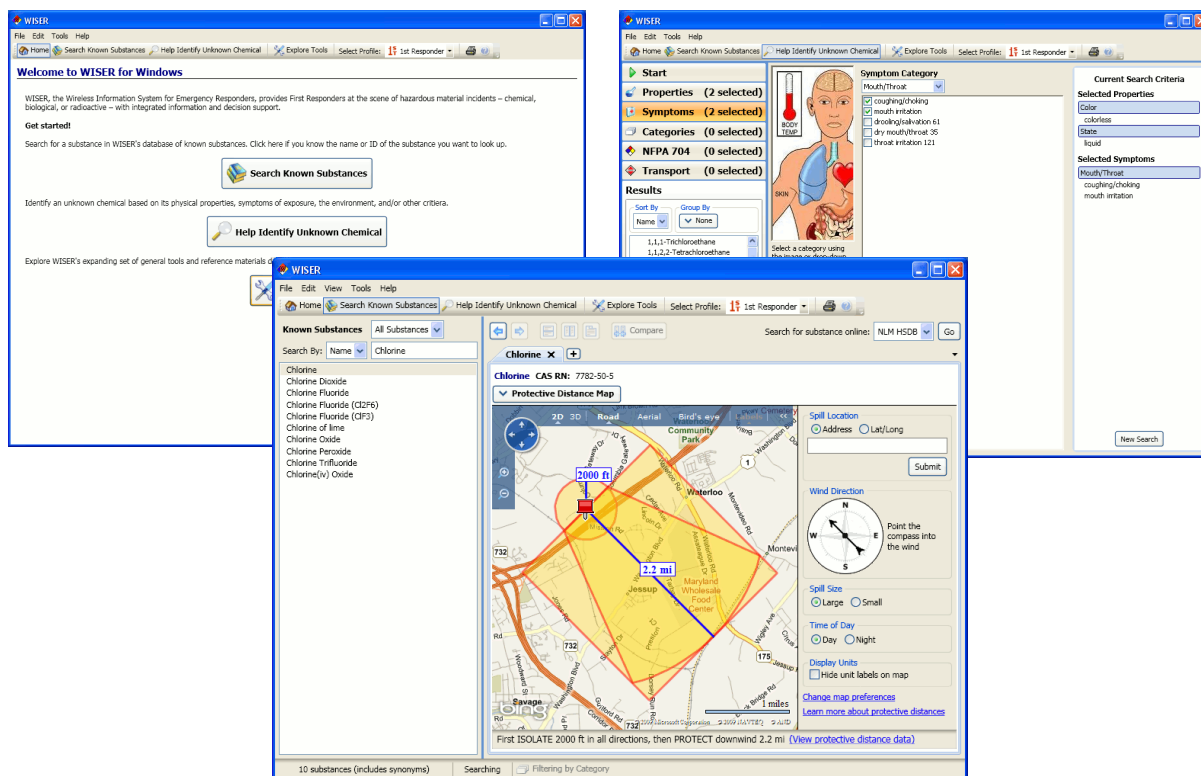


WISER User's Guide

Version 4.4



**Wireless Information System
for Emergency Responders**



2011-03-04

Prepared for:

National Library of Medicine
Specialized Information Services
National Institutes of Health – DHHS
6707 Democracy Blvd. Suite 510
Bethesda, MD 20892
<http://www.sis.nlm.nih.gov>



Prepared under contract by:
Next Century Corporation
7075 Samuel Morse Drive
Columbia, Maryland 21046
443.545.3100
<http://www.nextcentury.com>



Table of Contents

1. Introduction	3
1.1. Features	3
1.2. System Requirements.....	3
1.3. Installing WISER.....	4
1.4. Disclaimer.....	4
1.5. Software Used by WISER	4
2. A Walkthrough of WISER.....	5
2.1. Known Substance.....	5
2.1.1. Assess the Scene.....	6
2.1.2. Dive Deeper	10
2.1.3. Map the Protective Distance	11
2.1.4. Investigate Chemical Reactivity	15
2.2. Unknown Chemical.....	19
3. Appendix.....	25
3.1. Advanced Features.....	25
3.1.1. Tabbed Browsing.....	25
3.1.2. Substance Comparison	26
3.2. Help Menu	27
3.3. Tools	28
3.3.1. General Tools / Utilities.....	28
3.3.2. Algorithms	30
3.3.3. Reference Materials	33
4. About NLM.....	35

1. Introduction

The Wireless Information System for Emergency Responders (WISER) is a system concept for providing First Responders at the scene of hazardous material incidents – chemical, biological, or radioactive – with integrated information, decision support, and communications. WISER provides critical chemical information quickly and conveniently on mobile devices, such as PDAs, Windows Desktop computers, tablet computers, field laptops, mobile phones, and mobile data terminals. It aids in the identification of unknown chemicals and, once the chemical is identified, provides guidance on immediate actions necessary to save lives and protect the environment. Substance information and identification properties come from the Hazardous Substances Data Bank (HSDB), developed and maintained by the National Library of Medicine.

WISER currently exists as a standalone application for the iPhone, Pocket PC, Windows SmartPhone or Palm OS devices and as a Windows Desktop application; this document describes the Windows Desktop version. WISER contains HSDB information and decision support logic for 400+ substances (future versions will provide access to more substances). The substances were chosen based on First Responder inputs, degree of chemical hazard, and historical frequency of incidents. The WISER application assists First Responders in rapidly determining the substance involved and gives the First Responder critical information regarding the substance, allowing them to take the necessary immediate actions to minimize the effects of the hazmat incident.

1.1. Features

- Access to data from the Hazardous Substance Data Bank, covering basic, physical, hazardous material, medical, and environmental areas
- Multiple substances, chosen based on First Responder inputs, degree of chemical hazard, and historical frequency of incidents
- Substance identification support, based on physical properties, patient symptoms, NFPA 704 hazard values, substance categories, and transport type
- Protective distance mapping, based on the protective distance and a chosen location
- Chemical reactivity
- General tools and reference materials for on-scene support, e.g., the complete Emergency Response Guidebook, and the WMD Response Guidebook
- Biological substance list and substance data
- Radiologicals
 - Radioisotope substance list and substance data
 - Tools and reference documentation for on-scene support of radiological events

1.2. System Requirements

For system requirements, please see the README that is included in the WISER installation, or in the download section of the [WISER website](#).

1.3. Installing WISER

For instructions on installing and uninstalling WISER, please see the README that is included in the WISER installation, or in the download section of the [WISER website](#).

1.4. Disclaimer

The U.S. Government does not warrant or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed.

It is not the intention of NLM to provide specific medical advice to the public, but rather to provide users with information to better understand their health.

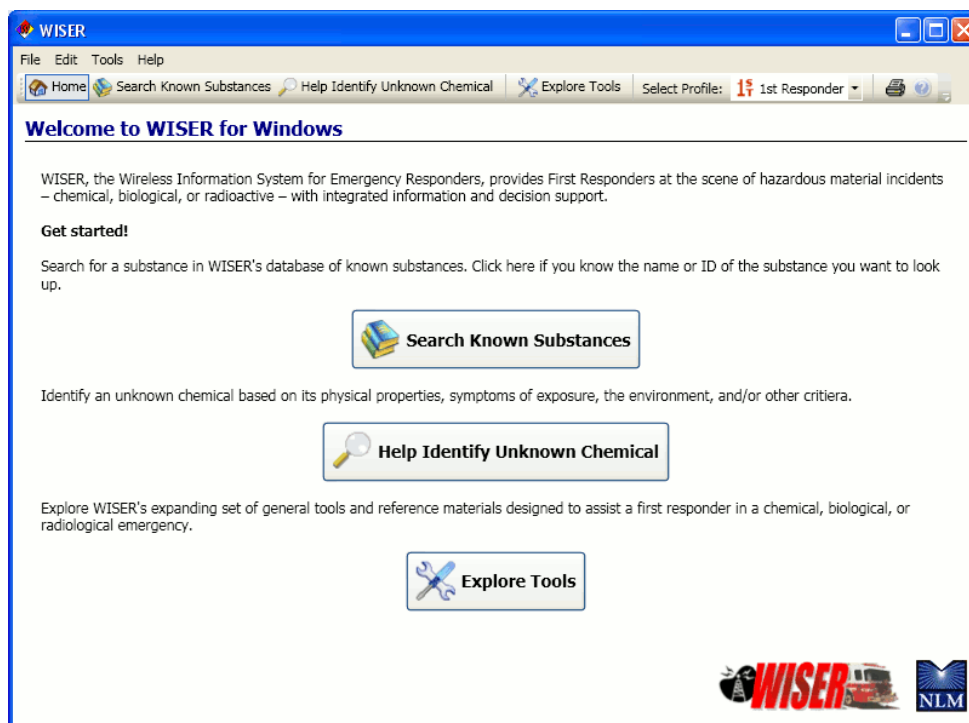
NLM does not endorse or recommend any commercial products, process, or services.

1.5. Software Used by WISER

The WISER application makes use of third-party software. License information for this software is available in the file DisclaimerAndLicenses.txt that is included with the WISER distribution. This third-party software consists of:


- SharpZipLib - produced by Mike Krueger. See <http://www.icsharpcode.net/OpenSource/SharpZipLib/Default.aspx>. SharpZipLib is used to compress and uncompress data in the WISER database.

2. A Walkthrough of WISER



The WISER application is run from the WISER Desktop Shortcut or the Start→Programs menu. To start WISER, double click the WISER Desktop Shortcut or, alternatively, find the WISER Shortcut within your start menu and click the WISER application icon.

The remainder of this section details the functionality of WISER using a walkthrough of two typical scenarios. The first of these scenarios discusses the use of WISER when dealing with a known substance. This scenario demonstrates how to search for a specific WISER substance, details several options for browsing WISER's set of substances, and explains how to delve into WISER's extensive database of substance information. The second of these scenarios demonstrates the Help Identify Unknown Chemical feature of WISER, a feature that allows the user to identify a chemical substance using its physical properties, symptoms of exposure, the environment, and other criteria.

Look for this symbol  for quick tips that can help you take advantage of advanced WISER features.

2.1. Known Substance

In the known substance scenario, you are the first responder at a scene. There is an overturned cargo tank with the words 'Hydrogen Peroxide' on the side; the papers on board and the driver verify that it is hydrogen peroxide. There is a small fire caused by the engine on the cargo tank. The driver of the truck has been splashed with hydrogen peroxide and may have ingested some of it.

2.1.1. Assess the Scene

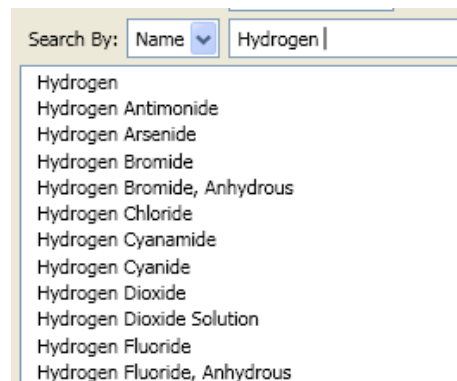
Use WISER to assist you with the immediate tasks at hand:

1. Clear out an appropriate area around the tanker truck
2. Treat the driver.
3. Respond to the small fire.

First, select the Search Known Substances button from the WISER home page or toolbar.

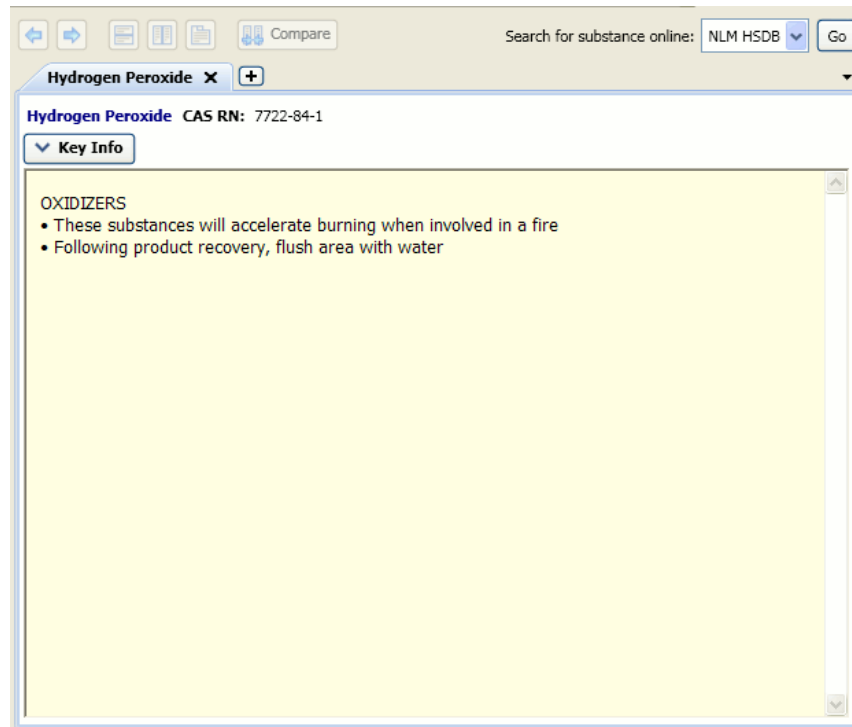



Search for the substance by name. Enter 'Hydrogen Peroxide' into the Search By text field. Notice that as you type this name, the current results will update to reflect the text in this field.



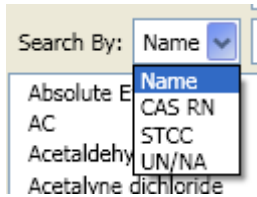
The image shows a search interface. At the top, there is a label "Search By:" followed by a dropdown menu set to "Name" and a text input field containing "Hydrogen". Below the input field is a list of search results. The first result is "Hydrogen", which is highlighted. The other results are "Hydrogen Antimonide", "Hydrogen Arsenide", "Hydrogen Bromide", "Hydrogen Bromide, Anhydrous", "Hydrogen Chloride", "Hydrogen Cyanamide", "Hydrogen Cyanide", "Hydrogen Dioxide", "Hydrogen Dioxide Solution", "Hydrogen Fluoride", and "Hydrogen Fluoride, Anhydrous".

Find 'Hydrogen Peroxide' in the results list and select it with your mouse. This will populate the active Substance Data Tab in the right portion of the window with data for your selected substance. By default, the Key Info data item will be displayed. This provides a very brief summary of the most critical information about the substance.

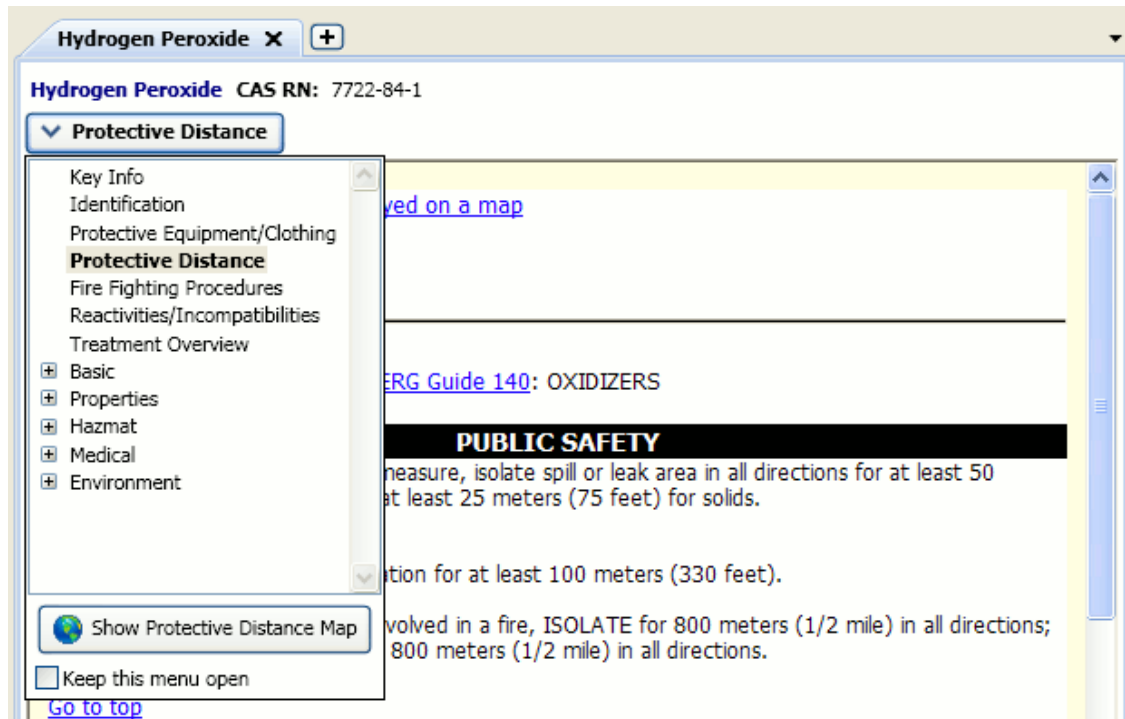


 Substances can be looked up and ordered using a variety of identifiers:

- Name: ordered alphabetically by name
- CAS RN: ordered by CAS registry number
- STCC: ordered by STCC number
- UN/NA: ordered by UN/NA number



To determine the appropriate area to clear out, select the Protective Distance option from the data menu, as shown in the following figure. This brings up the evacuation distance information from the DOT Emergency Response Guidebook (ERG). (The ERG is also accessible in its entirety by selecting the Hazmat submenu.)



Hydrogen Peroxide CAS RN: 7722-84-1

Protective Distance

- Key Info
- Identification
- Protective Equipment/Clothing
- Protective Distance**
- Fire Fighting Procedures
- Reactivities/Incompatibilities
- Treatment Overview
- Basic
- Properties
- Hazmat
- Medical
- Environment

Show Protective Distance Map

Keep this menu open

Go to top

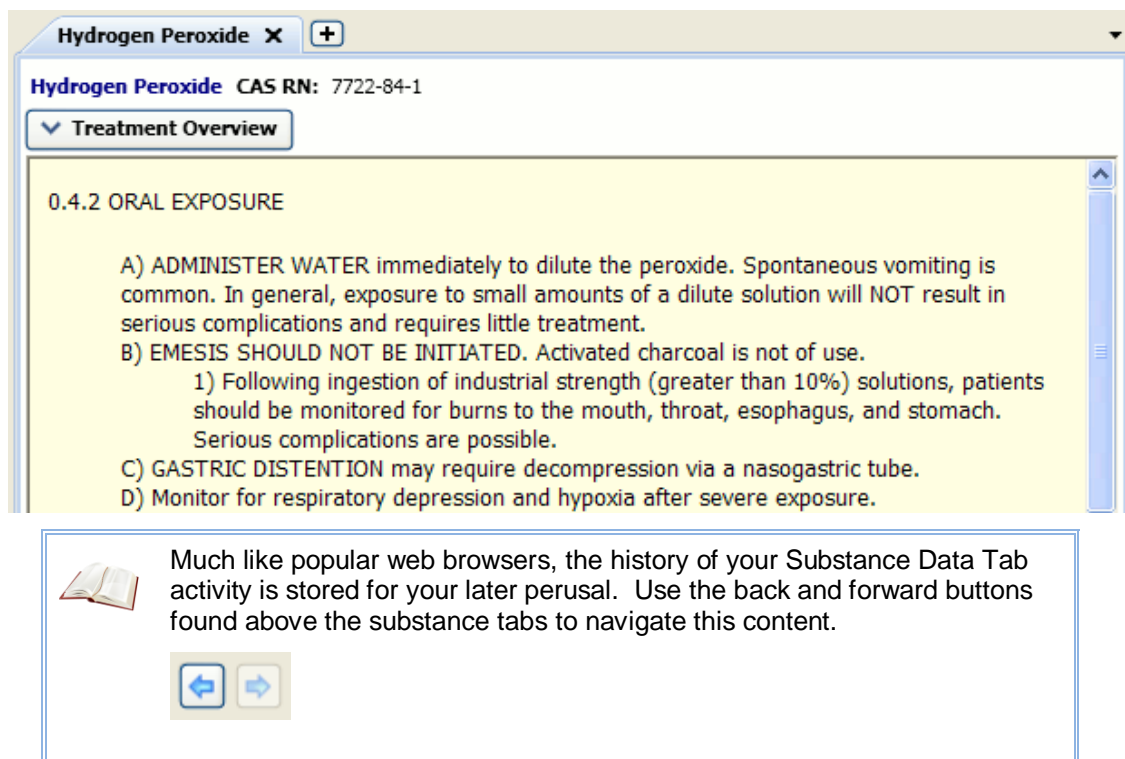
PUBLIC SAFETY

Measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

Isolation for at least 100 meters (330 feet).

Involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; 800 meters (1/2 mile) in all directions.

Treatment of the driver can be determined by selecting the Treatment hot link, as shown below. (The treatment data is also accessible from the Medical submenu).



Hydrogen Peroxide CAS RN: 7722-84-1

Treatment Overview

0.4.2 ORAL EXPOSURE

A) ADMINISTER WATER immediately to dilute the peroxide. Spontaneous vomiting is common. In general, exposure to small amounts of a dilute solution will NOT result in serious complications and requires little treatment.

B) EMESIS SHOULD NOT BE INITIATED. Activated charcoal is not of use.

1) Following ingestion of industrial strength (greater than 10%) solutions, patients should be monitored for burns to the mouth, throat, esophagus, and stomach. Serious complications are possible.

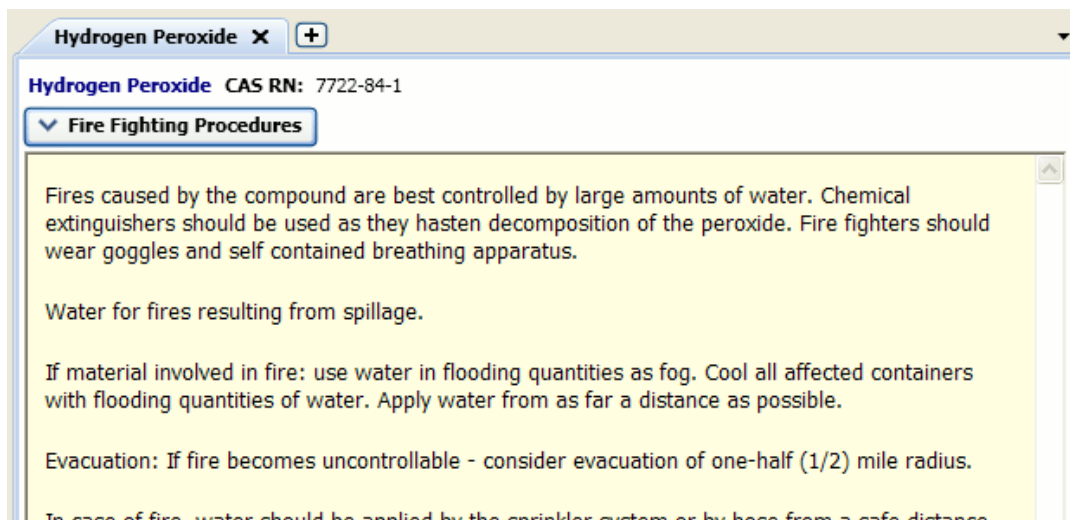
C) GASTRIC DISTENTION may require decompression via a nasogastric tube.

D) Monitor for respiratory depression and hypoxia after severe exposure.

Much like popular web browsers, the history of your Substance Data Tab activity is stored for your later perusal. Use the back and forward buttons found above the substance tabs to navigate this content.

Back Forward

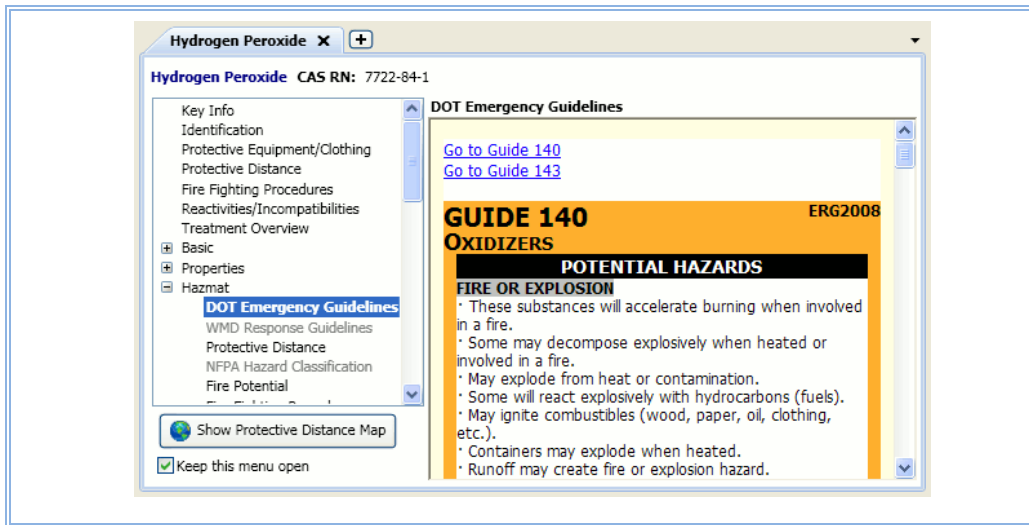
Finally, for information on the correct response to the fire, select the Fire Procedures hot link in the data menu, as shown below. (The Fire Procedures is also accessible from the Hazmat submenu).



Customize the hot links that appear in the substance data menu by setting your WISER profile.



Want to keep the data menu available while you browse WISER content? Select the 'Keep this menu open' checkbox from the bottom of the data menu.



2.1.2. Dive Deeper

The data presented above is only a small sample of the data provided by WISER. Use the data menu to acquire other information as the situation requires. Here is a small sample of the data that is available for a given substance:

- DOT Emergency Guidelines
- WMD Response Guidelines
- NFPA Hazard Classification
- PPE (Personal Protective Equipment & Clothing)
- Synonyms
- Reactivities & Incompatibilities
- AEGL (Acute Exposure Guideline Levels)
- NIOSH Recommended Exposure Levels
- OSHA Standards
- Environmental Fate
- Non-Human Toxicity Values
- Imagery (biological substances)
- And much, much more

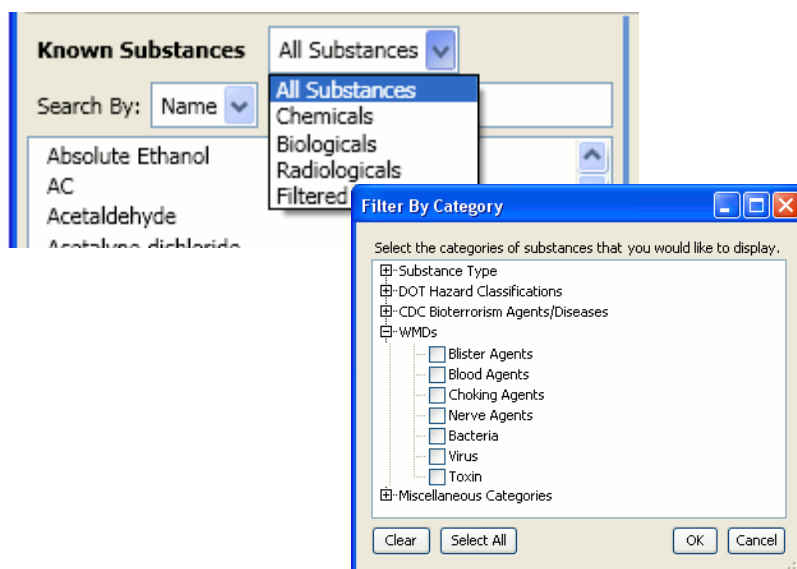


Do you have an active internet connection? Additional resources from the National Library of Medicine are available at the touch of a button. Select the online resource of interest and choose Go.

Search for substance online:



WISER substances are categorized. Use these categories to filter the list of substances to a named category (e.g. all biological substances) or a custom filter of your choosing.



2.1.3. Map the Protective Distance

Protective distance data represents the areas likely to be affected during the first 30 minutes after substances are spilled, per the DOT Emergency Response Guidebook. In addition to viewing the raw distance data for a substance, these distances can be visualized on a live map. This feature leverages Microsoft's bing™ mapping technology, and thus **requires Internet connectivity**.

The protective distance map is most often accessed using the Protective Map button found on the bottom of the data menu. Press this button, click the link provided in the protective distance text data, or select Protective Distance Map within the Hazmat data menu.



Upon launch, a map is displayed showing your default location, as shown below. By default, this location simply displays a map of the United States. Using an address or specific longitude and latitude, enter a specific spill location.



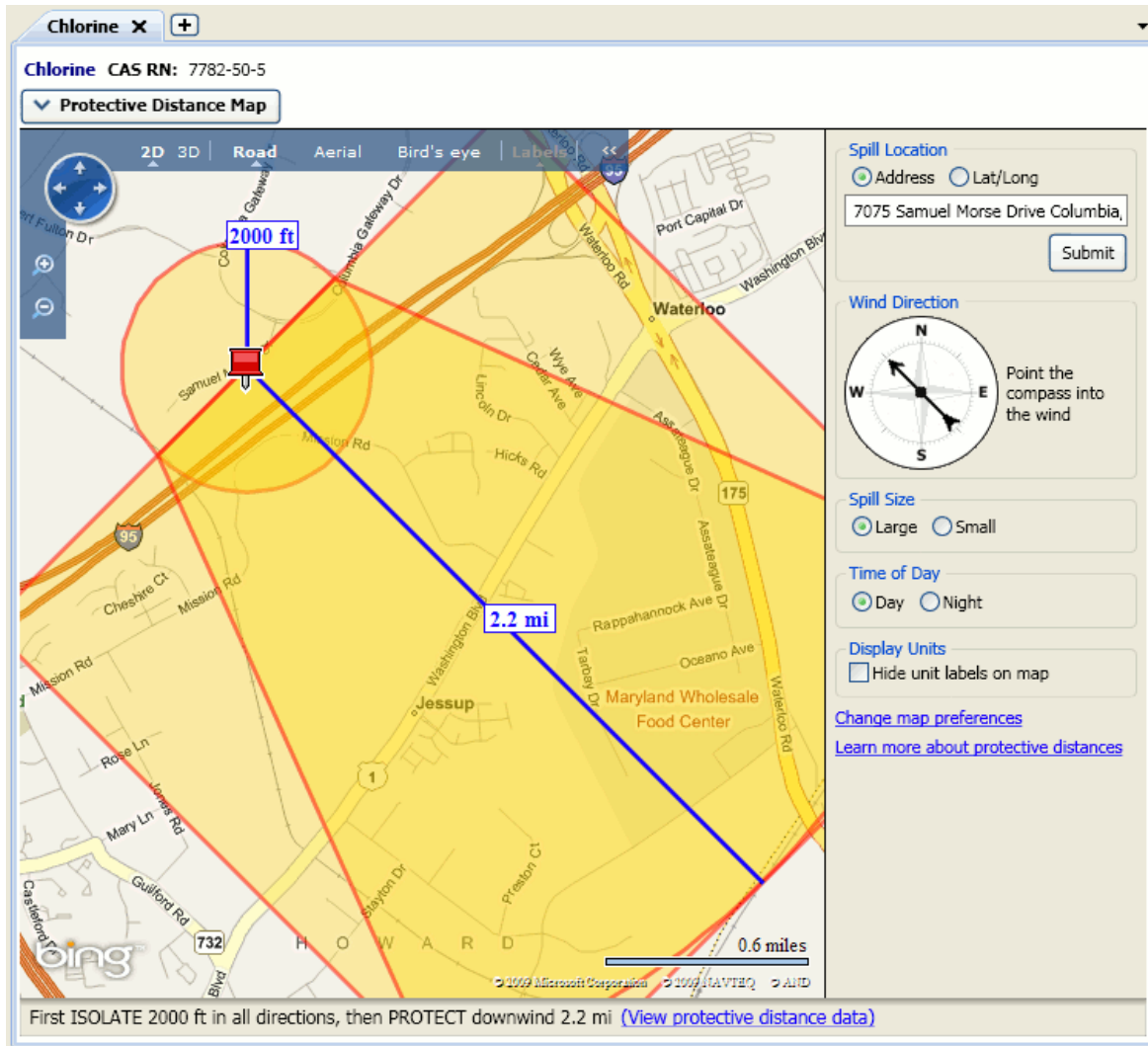
A full or partial address can be provided. The following addresses are valid examples:

- 9999 Main street, Silver Spring, Maryland
- Main St., Silver Spring, MD
- Silver Spring, MD
- 21023 (a zip code)

If an invalid address is entered, Microsoft® Virtual Earth™ will display a list of suggestions.

Adjust the parameters of the spill as needed. These parameters include:

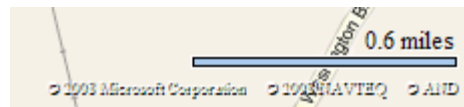
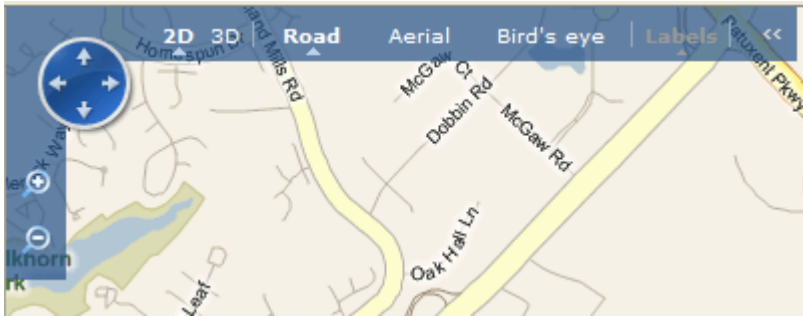
- Wind direction (Note that you must point the arrow into wind.)
- Spill size
- Time of day
- Location of spill (for water reactive substances)



Some substances may have more than one set of distance data. If this is the case, you may select the specific material. By default, the worst case distances are overlaid on the map.

Materials
 Select material or worst case:

The upper left corner of the map contains a set of controls that may be used to manipulate the map. You may use these controls to zoom or pan the map. This can also be accomplished with your mouse: click and drag in the map to pan, and use your mouse wheel to change the zoom level. The bottom right corner of the map displays the scale.



The road and aerial options change the type of information provided by the map, as does the Bird's eye option, an example of which is shown below.

Hydrogen Peroxide X +

Hydrogen Peroxide CAS RN: 7722-84-1

▼ Protective Distance Map

Spill Location

Address Lat/Long

7075 Samuel Morse Drive Columbia, SC

Submit

Materials

Select material or worst case:

Use Worst Case distances

Wind Direction

Point the compass into the wind

Spill Size

Large Small

Time of Day

Day Night


Display Units

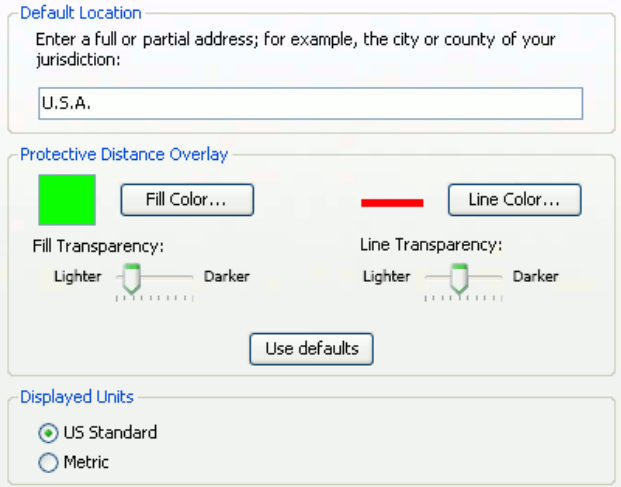
Hide unit labels on map

[Change map preferences](#)

[Learn more about protective distances](#)

Immediately ISOLATE 150 ft in all directions, then consider initial EVACUATION 330 ft downwind ([View protective distance data](#))

 Customize your map by altering your user preferences. These preferences can be accessed from the File menu or directly, through a link found beside the protective distance map. Preferences include your default location, the colors of the protective distance overlay, and the units of measurement displayed within the map.



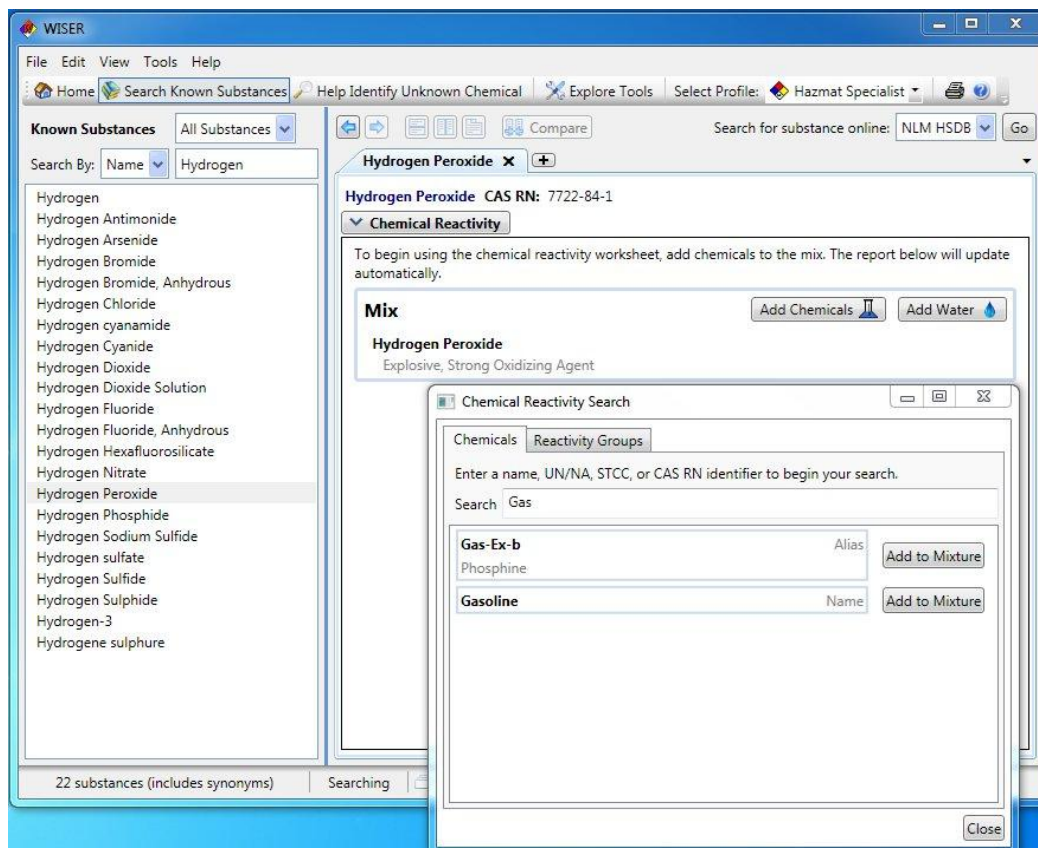
2.1.4. Investigate Chemical Reactivity

The chemical reactivity feature of WISER allows a user to investigate the possible hazards involved when mixing two or more substances. Continuing the known substance scenario above, mix Hydrogen Peroxide, the chemical of interest, with gasoline, a potential danger at the scene.

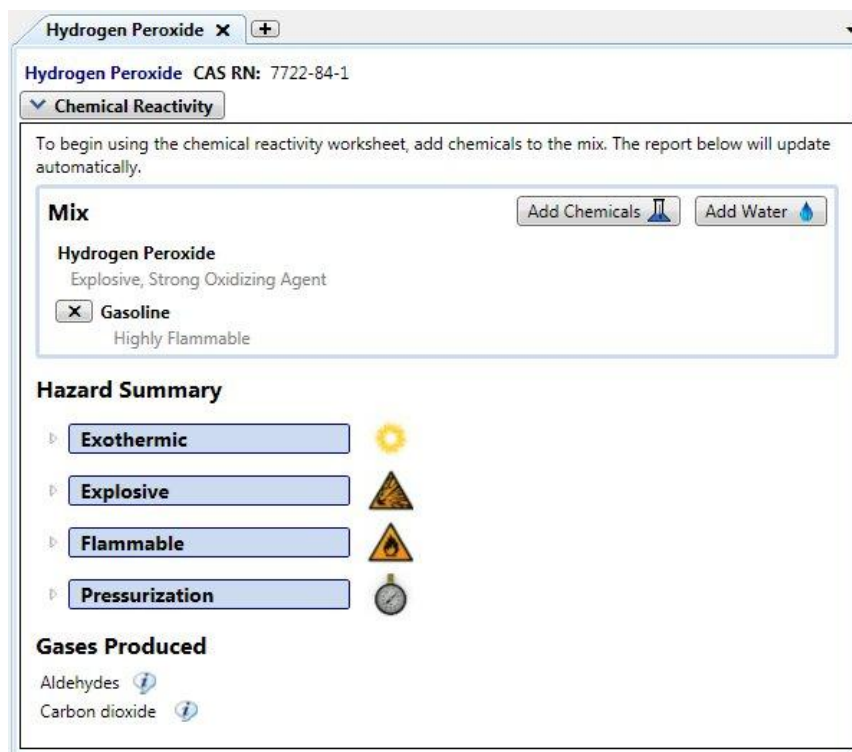
Chemical Reactivity is often accessed using the Reactivity button found on the bottom of the data menu. Press this button or, alternatively, select Chemical Reactivity within the Hazmat data menu.



This will bring up an empty worksheet populated only with the initial substance, Hydrogen Peroxide. Select the Add Chemicals button to search for a new chemical to add to the mix.

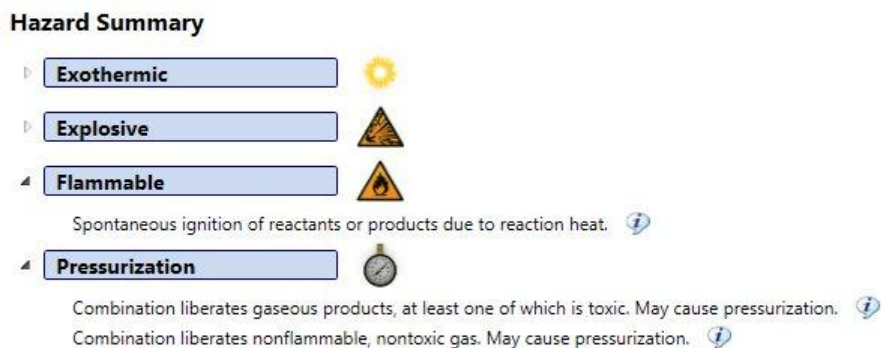


In the Chemical Reactivity Search dialog, search for Gasoline by name. Enter 'Gasoline' into the Search field. As you type in this name, the results will update to reflect the current search text. Select the Add to Mixture button next to Gasoline to add this new chemical to the mix. Close the search dialog.










The reactivity worksheet will provide a navigable report consisting of the hazards and gases that may result from the current mixture. Intrinsic hazards, displayed in grey just under the chemical name, are also provided.

To see a full list of hazards for a given type, double-click the hazard type heading or click the small triangle found next to the heading of interest.



Hazard Summary

- Exothermic 
- Explosive 
- Flammable 
 - Spontaneous ignition of reactants or products due to reaction heat. 
- Pressurization 
 - Combination liberates gaseous products, at least one of which is toxic. May cause pressurization. 
 - Combination liberates nonflammable, nontoxic gas. May cause pressurization. 

To display detailed information regarding a specific reaction or set of reactions that caused a particular hazard or gas release, move your mouse over the information bubble found beside the hazard or gas of interest. A popup containing detailed reaction information will be displayed.



Reactive groups of chemicals may also be added to a mix. While using the Chemical Reactivity Search dialog, select the Reactivity Groups tab to explore these groups. Water, one of these groups, can be added directly from the worksheet by selecting the Add Water button.

2.2. Unknown Chemical

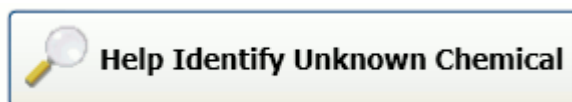
Note: *This feature only supports identification of chemicals. The substances in WISER's radioisotope and biological substance lists are excluded.*

Note: *The tutorial section contains references to substance counts which may change as updated versions of the WISER database are released. This would be caused by the addition of new substances or updates to the search data. The counts reflected in these sections should be used for example purposes only.*

In this scenario, you are the Hazardous Materials Specialist responding to an incident at a warehouse. The warehouse has been cleared and the situation has been stabilized. Your primary task is to identify the substance and provide information and recommendations to the Incident Commander.

The substance in question has been leaking from an unmarked barrel. It has been described as a colorless liquid with an alcohol smell. The workers from the warehouse are showing the following symptoms: nausea, dizziness, headache, eye irritation, and low body temperature.

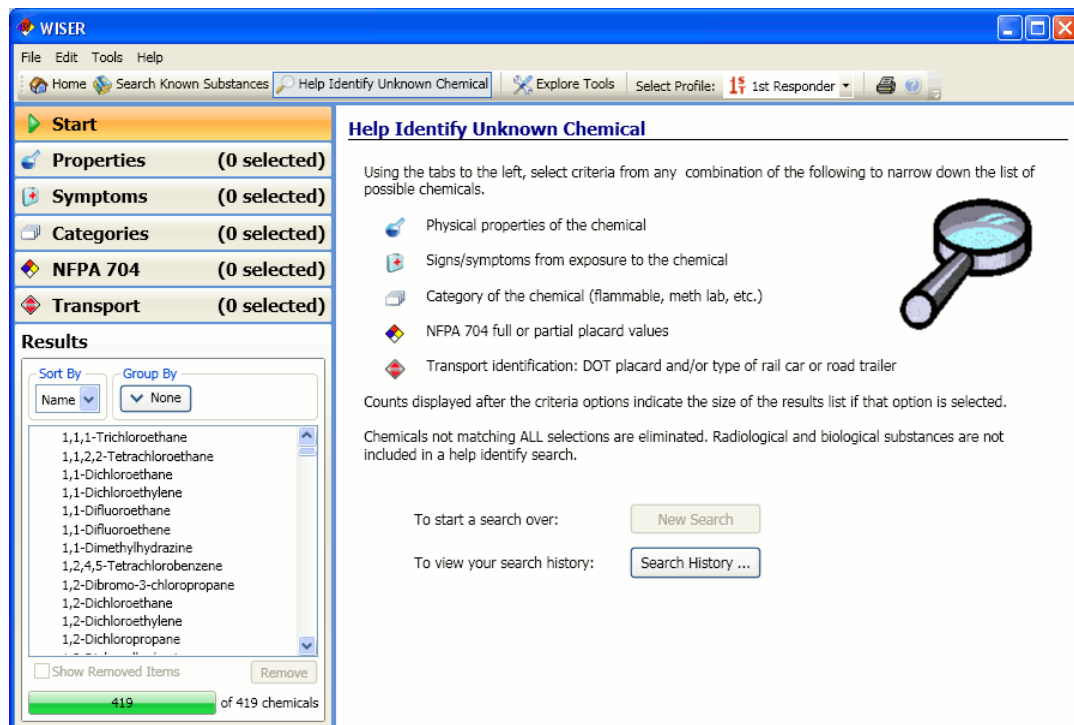
First, select the Help Identify Unknown Chemical button from the WISER home page or toolbar.



The initial, or start, help identify page presents the various help identify search criteria available to a first responder as tabs found along the left side of the window.

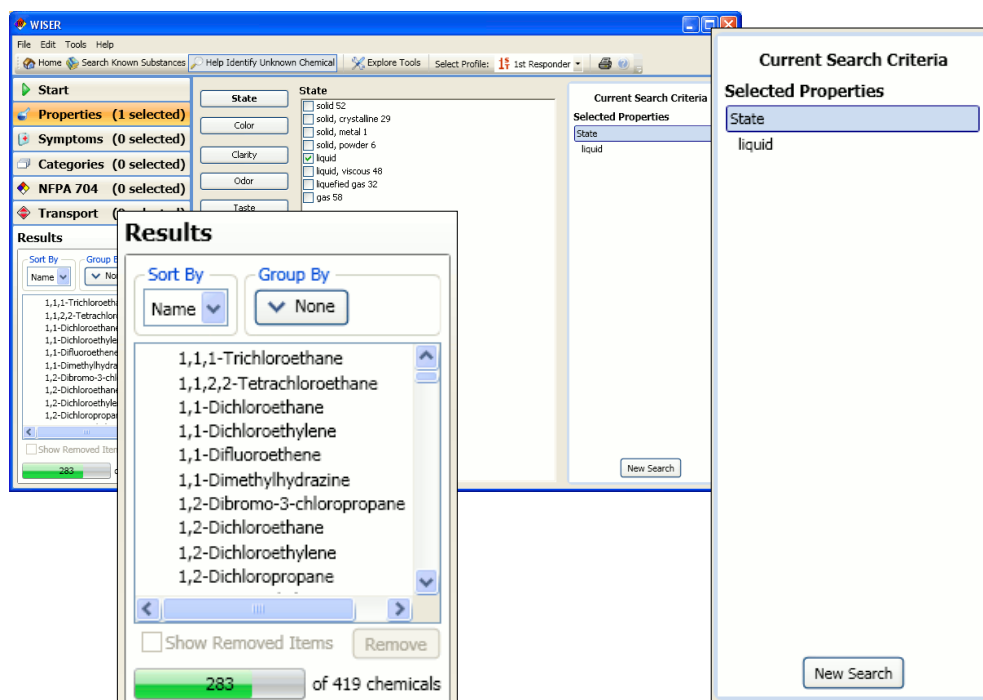
- Properties: for designating the physical properties of the substance, such as state
- Symptoms: for designating signs/symptoms of victims due to exposure to the substance
- Categories: for classifying a substance by categories, such as "flammable", "meth lab", etc.
- NFPA 704: for entering hazard values from a full or partial NFPA 704 placard
- Transport: for indicating the DOT placard found on the transport container, and/or the type of rail car or road trailer used to transport the substance

You'll also find a Start tab that will return you to this initial screen, allowing you to restore a previous search or begin a new search, and a Results tab for browsing your results, discussed later in this section.



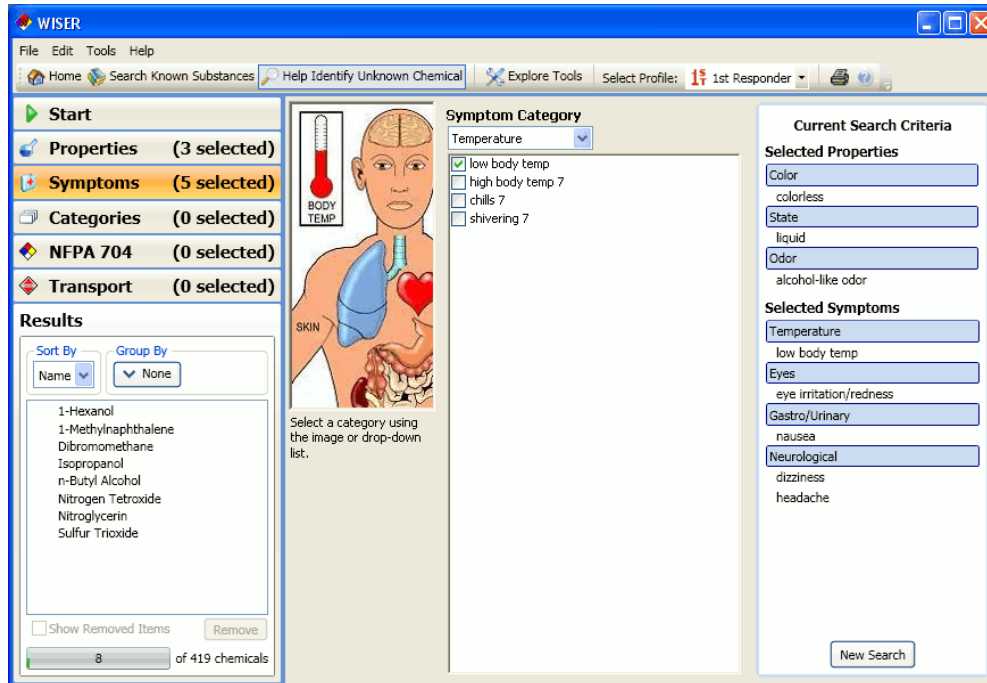
The Help Identify Unknown Chemical tool presents these options without prompt. Select the criteria appropriate to the current scene and enter the information you know or witness.

In the scene described above, a colorless liquid with an alcohol smell has been discovered. These properties of the unknown chemical can be added as criteria to the search. Select the Properties tab and select the State button, bringing up the possible values of physical state. Select 'liquid.' 'Liquid' will now appear under the Current Search Criteria found on the right and the current search results will be reduced to match this selected criteria.

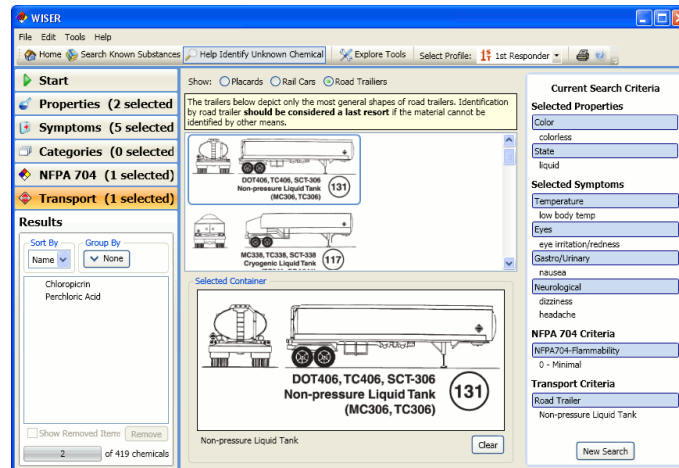


Following the same process, select colorless from the Color property and select alcohol-like from the Odor property. The results list will be further reduced to match the additional criteria.

Continue by selecting the Symptoms tab and adding the criteria described at the scene. The symptoms (nausea, dizziness, headache, eye irritation, and low body temperature) can be added by selecting the body part that shows the symptom and choosing the specific symptom in the presented list.



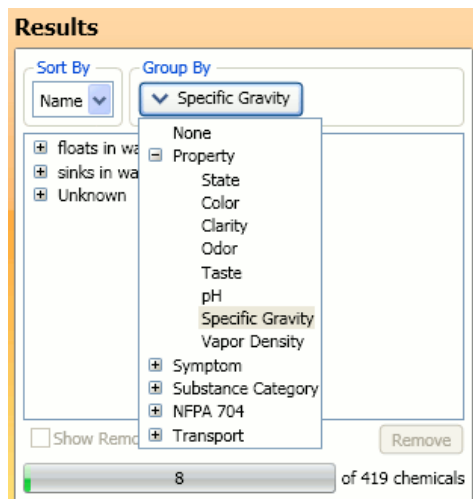
Categorization, NFPA 704 placards, and transportation criteria may be specified if that information is available. Enter all the information you know.



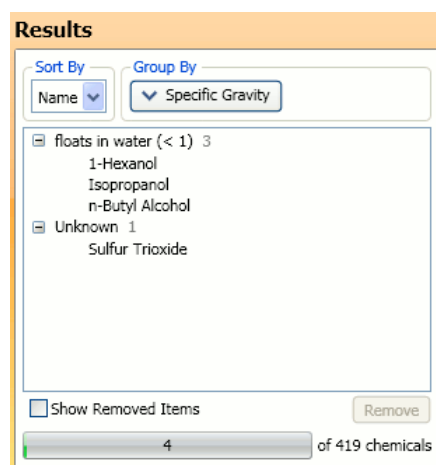
For nausea, click on the stomach and choose nausea. For dizziness and headache, click on the brain and then select the corresponding values in the list. The symptoms of eye irritation and low body temperature can be selected in a similar fashion. For eye irritation, click on the eyes in the image of the human body. Then, select irritation. For low body temperature, click on the image of the thermometer and then select low body temperature.

The current search yields just 8 results, listed on the bottom left of the window. These results may be grouped or sorted, removed when they are known to be incorrect, and, finally, viewed in a Substance Tab similar to the process described in section 2.1.

Click the Group By button and select the Specific Gravity grouping found within the Property menu. Note that when this tab (or any of its contents, such as the results list) has been selected, the right portion of the window will display Substance Data Tabs for viewing substance data, much like the interface presented in the Known Substance scenario.

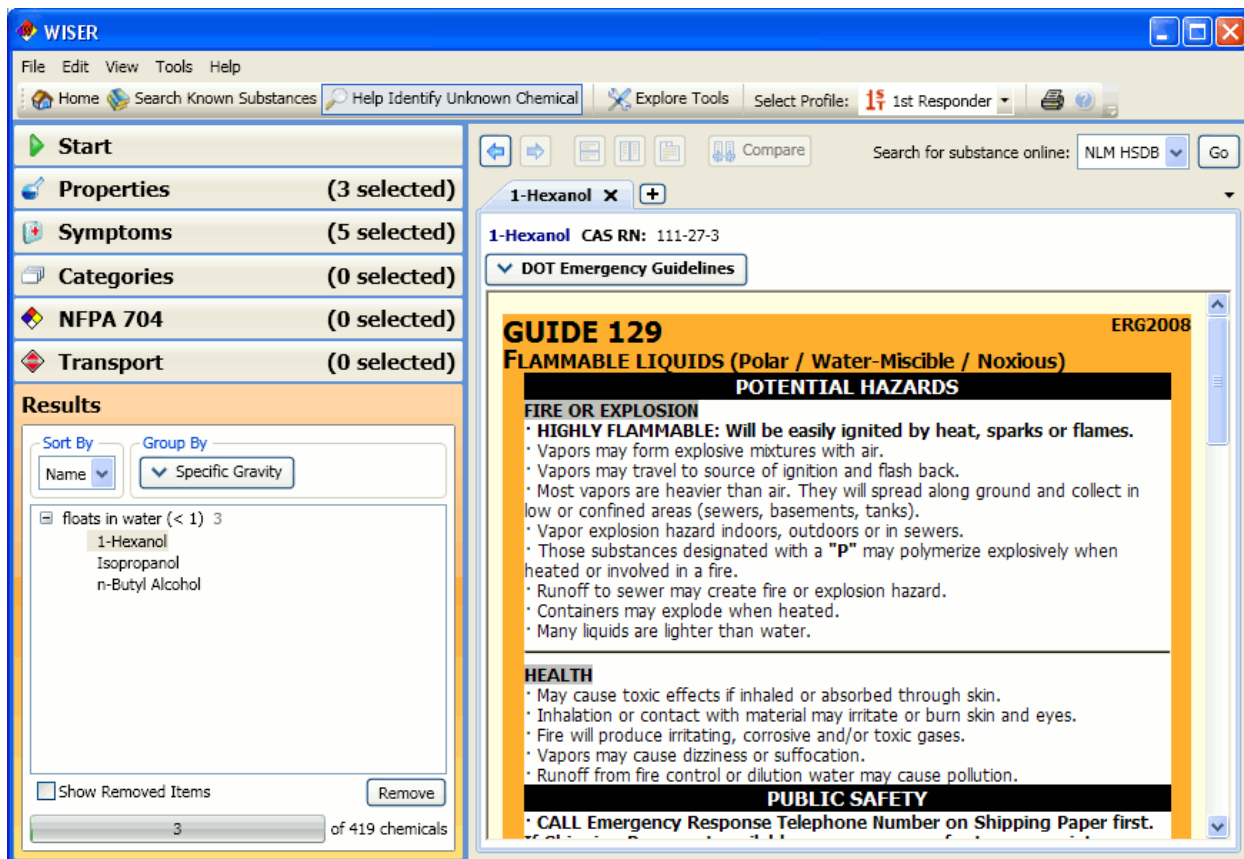


Based on the results of the grouping, the user tests the substance and observes that it is not soluble and floats on water. Thus, the “sinks in water” substances can be removed. This is done by expanding the “sinks in water” grouping, and then selecting each substance and clicking the Remove button. Alternatively, you may right click the substance and choose Remove from the menu that appears. This will remove this substance from the current search. Note that the Show Removed Items checkbox may be selected to display these now removed items and, if desired, include these substances in the current search.



The remaining substances must be examined in more detail to determine the correct substance. First, examine those substances under the “Unknown” grouping, indicating that WISER does not have specific gravity data for them. Select Sulfur Trioxide to view its Substance Data tab, the Key Info indicates that it

is water-reactive. Further investigation indicates that the melting point is 16.8° C. So, at the current temperature, it should be a solid. It is thus likely that this substance can be removed. Remove this substance from the list by highlighting it the list and selecting the Remove button.



The screenshot shows the WISER application window. On the left, a sidebar contains navigation options: Start, Properties (3 selected), Symptoms (5 selected), Categories (0 selected), NFPA 704 (0 selected), and Transport (0 selected). Below this is a 'Results' section with 'Sort By' (Name) and 'Group By' (Specific Gravity) dropdowns. A list shows 'floats in water (< 1) 3' with sub-items: 1-Hexanol, Isopropanol, and n-Butyl Alcohol. A 'Remove' button is visible at the bottom of the list. The main window displays the '1-Hexanol' CAS RN: 111-27-3. The 'DOT Emergency Guidelines' section is expanded, showing 'GUIDE 129' (ERG2008) for 'FLAMMABLE LIQUIDS (Polar / Water-Miscible / Noxious)'. The 'POTENTIAL HAZARDS' section includes 'FIRE OR EXPLOSION' and 'HEALTH' details. The 'PUBLIC SAFETY' section includes the instruction: 'CALL Emergency Response Telephone Number on Shipping Paper first.'

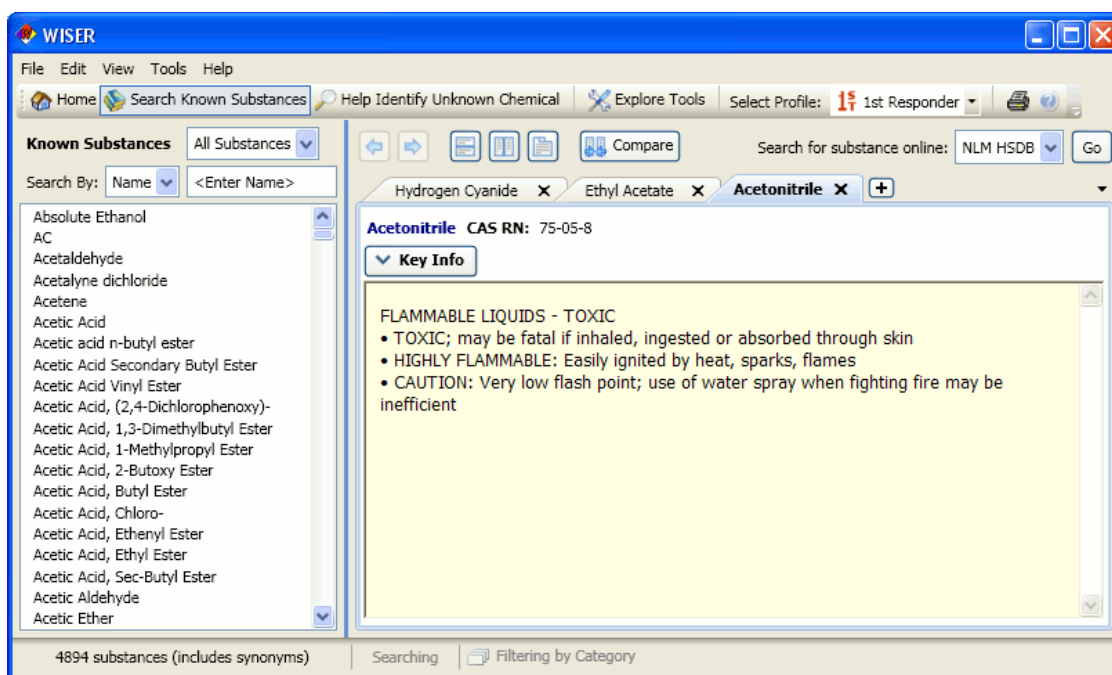
The final results of the search are 1-Hexanol, Isopropanol and n-Butyl Alcohol. Further investigation of each, using the Substance Data Window, shows that these hydrocarbons have very similar characteristics and procedures. For example, the Emergency Response Guidelines for all three are the same.

3. Appendix

3.1. Advanced Features

3.1.1. Tabbed Browsing

Much like popular web browsers, like Internet Explorer and Mozilla Firefox, the newest version of WISER supports tabbed browsing of substance data. This allows the user to open new Substance Tabs, populate these tabs with additional substance, and arrange these tabs as needed.



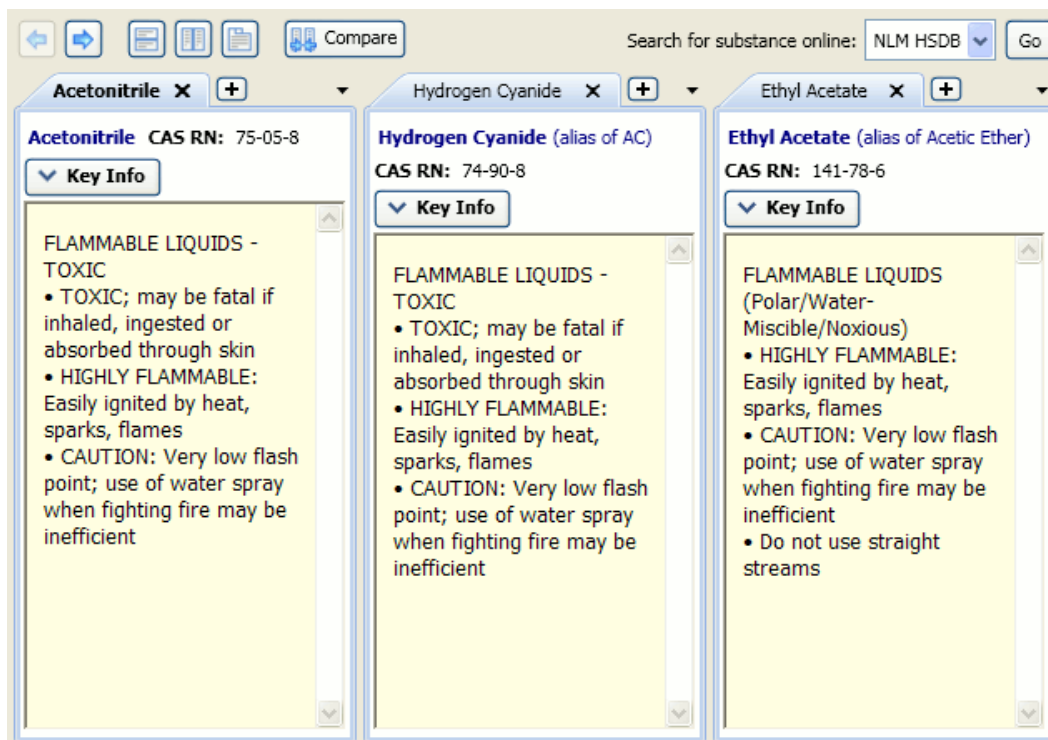
To leverage this feature, simply click the plus button found next to the last open tab.



This will open an empty Substance Tab, which includes some tips regarding how to use it. Select an item from the list of Known Substances or Help Identify Unknown Chemical results list to view substance data within the new tab.



A user of multiple Substance Tabs will find that additional options about the set of tabs become enabled. Substance Tabs can be arranged horizontally or vertically and, alternatively, restored to a flattened tab state.



Search for substance online: NLM HSDB Go

Acetonitrile CAS RN: 75-05-8
 Key Info
 FLAMMABLE LIQUIDS - TOXIC
 • TOXIC; may be fatal if inhaled, ingested or absorbed through skin
 • HIGHLY FLAMMABLE: Easily ignited by heat, sparks, flames
 • CAUTION: Very low flash point; use of water spray when fighting fire may be inefficient

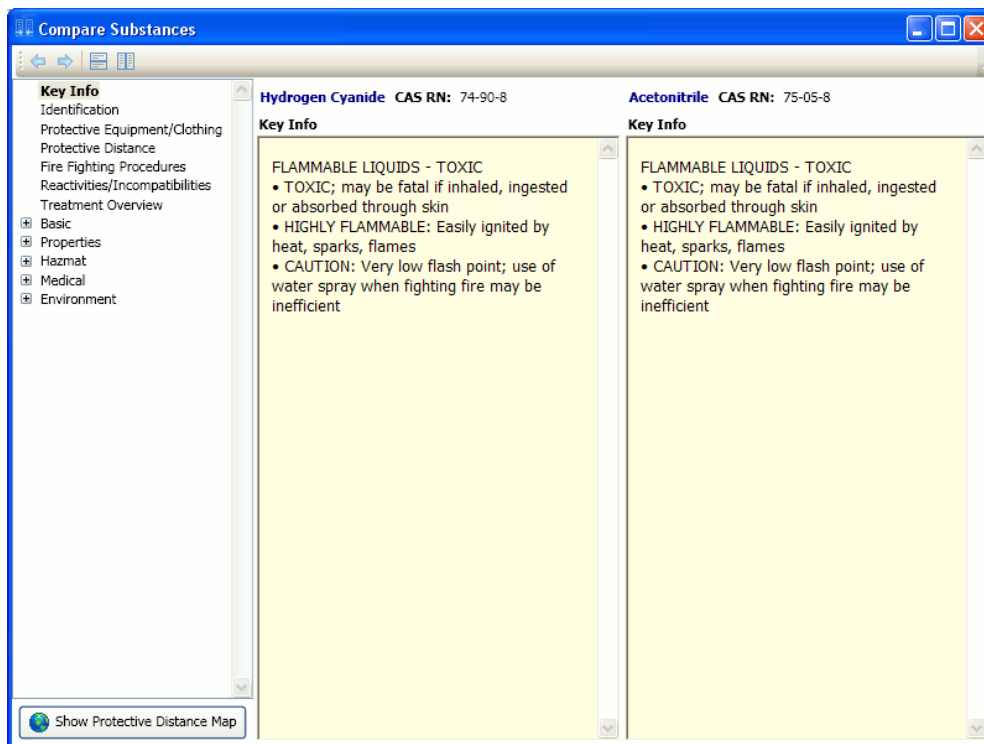
Hydrogen Cyanide (alias of AC) CAS RN: 74-90-8
 Key Info
 FLAMMABLE LIQUIDS - TOXIC
 • TOXIC; may be fatal if inhaled, ingested or absorbed through skin
 • HIGHLY FLAMMABLE: Easily ignited by heat, sparks, flames
 • CAUTION: Very low flash point; use of water spray when fighting fire may be inefficient

Ethyl Acetate (alias of Acetic Ether) CAS RN: 141-78-6
 Key Info
 FLAMMABLE LIQUIDS (Polar/Water-Miscible/Noxious)
 • HIGHLY FLAMMABLE: Easily ignited by heat, sparks, flames
 • CAUTION: Very low flash point; use of water spray when fighting fire may be inefficient
 • Do not use straight streams

3.1.2. Substance Comparison

In addition to the ad hoc comparison offered by the tab layout options noted above, substances may also be compared directly. Substance comparison, activated by clicking the compare button found above the Substance Tabs, opens a separate window and synchronizes the data menu of both substances. Select at item from the data menu found on the left side of the window to select the content displayed for all compared substances.

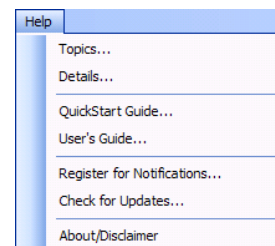




3.2. Help Menu

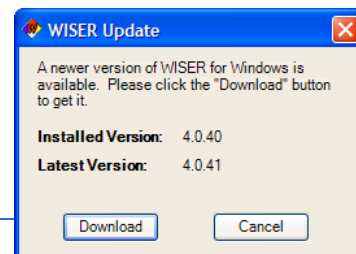
As shown at right, help content is accessible via the “Help” menu option.

There are two types of help content available at any given time, **Topics** and **Details**. The Topics option launches the help starting at the beginning of the help content (table of contents). The **Help Details** option is context sensitive, launching help at the content that describes the active window.



The QuickStart Guide and User’s Guide options open the external documentation that is packaged with the WISER installation. [Adobe Reader](#) or equivalent PDF-viewing software is required to view these documents.

The next two options, **Register for Notifications** and **Check for Updates**, require Internet connectivity. The **Register for Notifications** option opens a web browser and takes you to the WISER web site, displaying the page where you can join the WISER e-mail list. This list is used to periodically send out notifications related to WISER, such as the availability of new versions of the application. If you did not register when you downloaded WISER, or did not receive WISER via a download from the web site, then it is strongly encouraged that you do so to ensure you are kept up to date with the latest WISER news. E-mails from this list will be very infrequent, and your e-mail address will never be used for any other purpose.



The **Check for Updates** option checks the WISER web site to see if there is a new version of WISER. If not, a dialog displays indicating “No updates are available.” If a newer version is available, a dialog displays similar to that shown on the right. Pressing the **Download** button opens a web browser and takes you to the WISER web site, displaying the page from which you can download the new version. For additional details, see the README file that is installed with WISER.

Finally, the **About WISER** dialog, shown below, is accessible from this menu option. This dialog includes database and application version information along with the WISER disclaimer text.



3.3. Tools


WISER includes a set of utilities and reference materials along with the Known Substance and Help Identify Unknown Chemical functionality discussed above. These tools have been accessed from the menu, found along the top of the window, or, alternatively, through the WISER toolbox, accessible using a button on the WISER home page or toolbar. Clicking any of the tools within the WISER Toolbox will open a new window that displays the selected tool.

Tools fall into one of three categories, outlined below.

- General utilities with their own unique content and functionality.
- Algorithms – these are presented in an “algorithm viewer” which allows the user to respond to questions and walk through a path of an algorithm or flow chart in a “wizard-like” fashion.
- Reference Materials – these are instances of reference documentation, and are presented in a reference material viewer that provides for the browsing of all reference materials.

3.3.1. General Tools / Utilities


Many tools simply provide a specific piece of functionality that complements existing WISER features. These tools, such as the Emergency Response Guidebook 2008 and Radiation Unit Converter shown below, open in a separate window that includes only the desired tool.




The screenshot shows the ERG 2008 software interface. On the left is a list of materials with columns for ID, Guide, and Material. The main area displays the '2008 Emergency Response Guidebook' cover with search options: ID Number, Material Name, Placard, Rail Car, and Road Trailer. A 'Browse' section includes Guide Pages and Reference Pages. Overlaid on the right is the 'Radiation Unit Converter' window, which is set to 'Radioactivity' conversion. It shows 'From' as 1 curie and 'Results' as 1,000 mCi. Below the results is a table of units and their values.

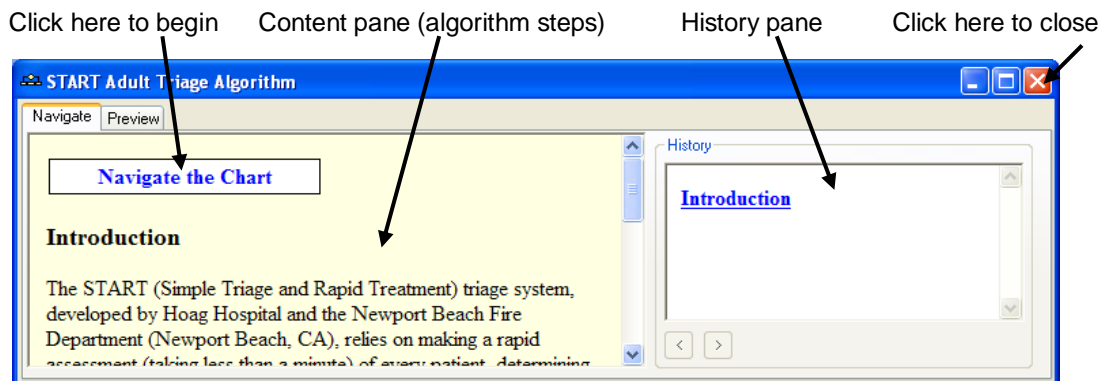
Unit	Abbrev	Value
millicurie	mCi	1,000
microcurie	µCi	1,000,000
nanocurie	nCi	1,000,000,000
picocurie	pCi	1.00e+012
becquerel	Bq	3.70e+010
terabecquerel	TBq	0.037
gigabecquerel	GBq	37
megabecquerel	MBq	37,000
kilobecquerel	kBq	37,000,000

3.3.2. Algorithms

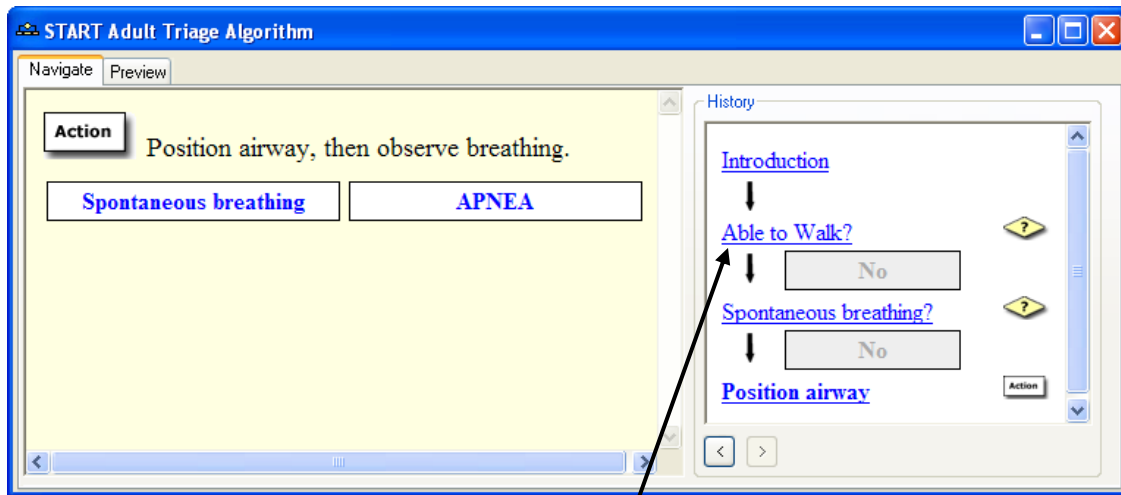
An algorithm viewer is available for helping the user walk through processes that involve multiple steps and decision points, often presented as a “flow chart”. In the WISER Toolbox, these tools are displayed with a flow chart symbol next to them: . Examples include the START and JumpSTART triage algorithms. Clicking any of these tools opens an algorithm viewer window with the following components:

- “Navigate” tab: used to step through the algorithm
 - Left pane: content; displays the steps/questions of the algorithm one at a time
 - Right pane: history; shows each of the steps that have been completed and the responses that have been selected; can be used to navigate back to previous steps to review and/or change responses
- “Preview” tab: displays a diagram of the entire algorithm

The initial display for an algorithm consists of an introduction, a button to begin navigation of the algorithm, and a button that previews the entire algorithm (same as clicking on the preview tab). Press the navigate button, and respond to the questions presented until an endpoint is reached (the content pane will not contain any responses to select). Click the top right corner () of the algorithm viewer to close it.

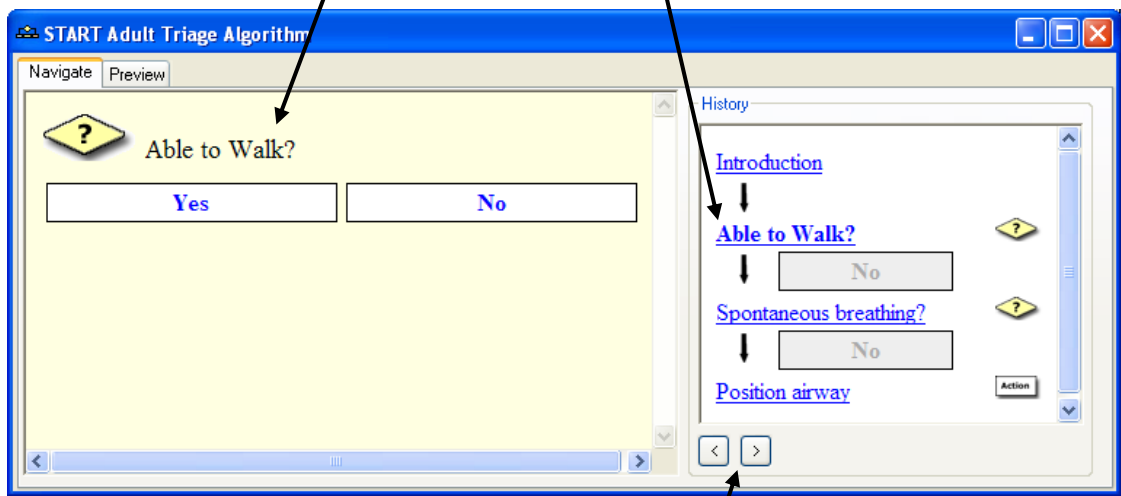


The left and right arrow keys at the bottom of the history pane provide for backing up and going forward through the steps already visited. To quickly return to a specific step, click that step in the list displayed in the history pane. Upon returning to a previous step, a different response can be chosen, and navigation resumes at that point of the algorithm. Boldface is used in the history pane to highlight the step that is currently being viewed in the left content pane.



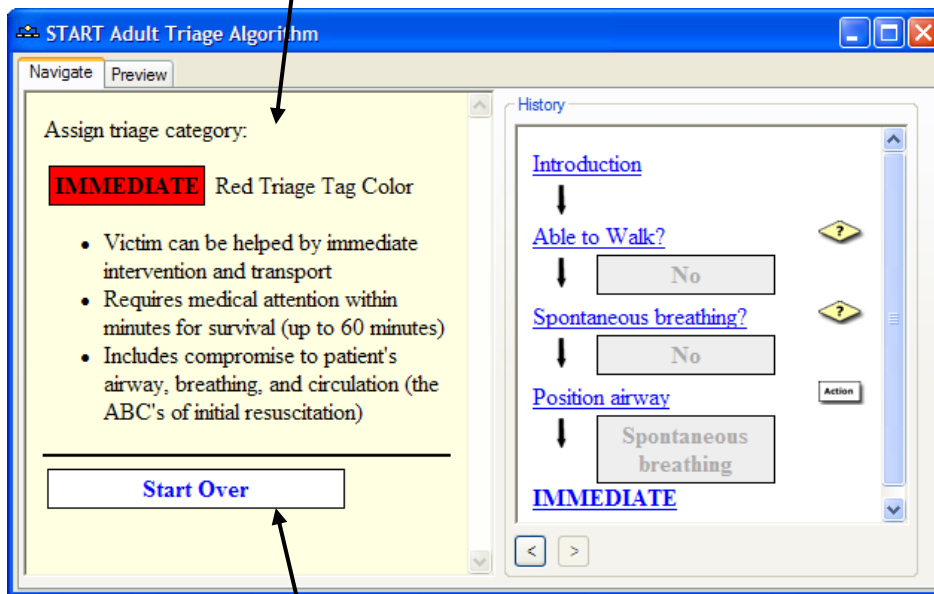
Click here to return to this step

Current step is highlighted in the history



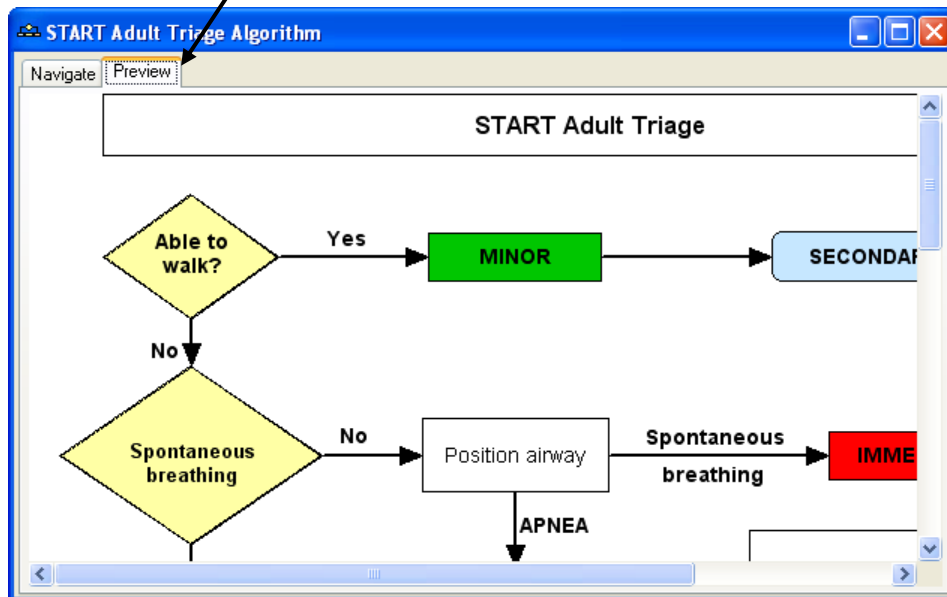
These buttons sequence through the history

Algorithm end point (no responses to choose from)



Uncheck the checkbox

Preview tab displays the complete algorithm



3.3.3. Reference Materials

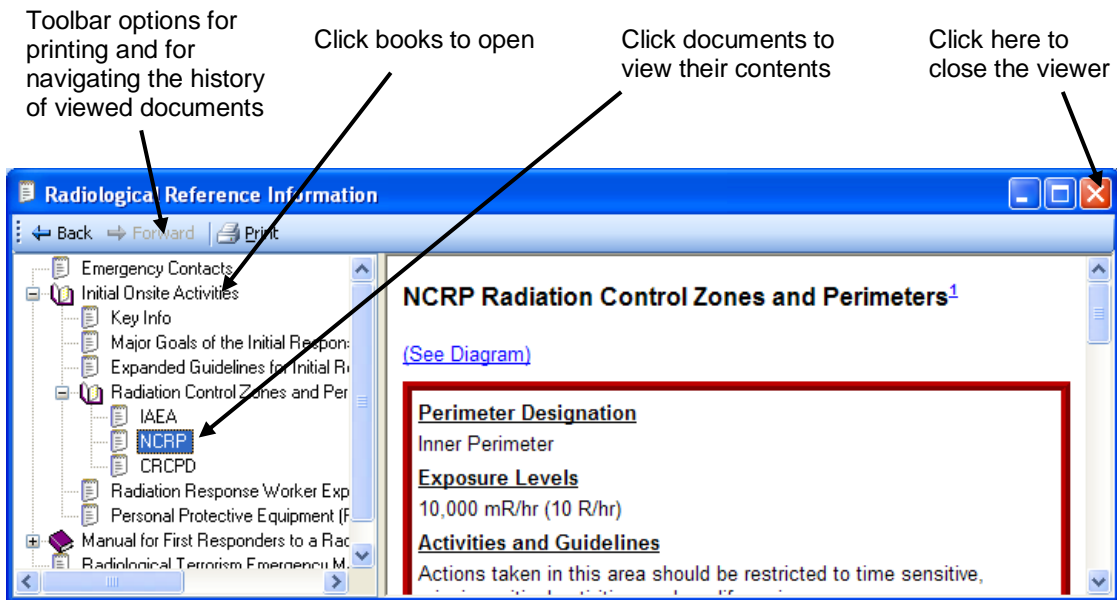
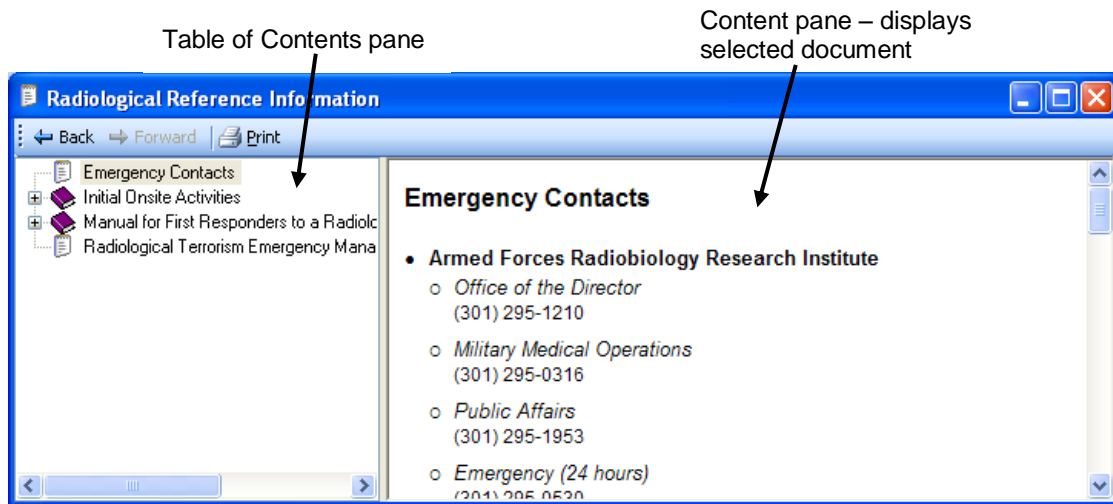
Reference material options in the toolbox are displayed with a document symbol next to them: .

Selecting any of these opens a reference material viewer with two panes:

- The right pane displays the selected content.
- The left pane contains a “tree” representing the table of contents of all reference materials for a particular grouping, for example, all radiological reference materials. This tree can be used to navigate to and display the other documents included in the reference materials.

In the table of contents, the books represent groupings of related documents, and can be opened to view the individual documents that they contain. Individual documents can be selected to view their content in the right pane. In addition, when clicking a book, the right pane displays all of the documents within that book, concatenated together into a single document.

A toolbar along the top of the reference material viewer allows for navigation back and forth through the history of previously viewed documents, as well as a print button that will print the contents of the right pane.





4. About NLM

The National Library of Medicine (NLM) is the world's largest medical library. The Specialized Information Services (SIS) Division of NLM is responsible for information coverage and services for several areas, including environmental health and toxicology, AIDS, and directories to other information resources concerned with health and biomedicine. SIS maintains the Hazardous Substance Data Bank (HSDB), covering over 4700 substances, their toxicology, emergency handling procedures, and environmental fate. The NLM is part of the National Institutes of Health, an agency of the U.S. Department of Health and Human Services.