

eCHAP-ADVANCED

AN **EXCEL** TOOL
TO HELP YOU
EXCEL IN ASSESSING
CHEMICAL
HAZARDS IN
YOUR
WORKPLACE



Welcome to eCHAP-Advanced!

(Chemical Hazard Assessment and Prioritization—Advanced)

This is a user guide to help you learn how to use eCHAP-Advanced. This tool uses hazard banding, a process to categorize chemicals into bands that correspond to the chemical's adverse effects and potency. Banding can help workplaces understand their chemicals' hazards and help prioritize chemicals for further assessment and control. To do this, the only information each assessment needs comes from Section 2 in the chemical's Material Safety Data Sheet (now called Safety Data Sheet).

eCHAP-Advanced is an advanced version of eCHAP-Basic. The latter allows users to assess a limit of 10 chemicals. Once familiarizing oneself with Basic, you can then use eCHAP-Advanced, in which users can assess as many chemicals as they like. eCHAP-Basic can be accessed at www.ryerson.ca/chemical-hazard-assessment-prioritization/chap-tools

When you are ready to learn how to use eCHAP-Advanced,
continue on!

Table of Contents

Background to eCHAP.....	3
How to use eCHAP.....	4
Assistive buttons	17
What to do with results.....	23
Frequently asked questions.....	25
Contact page	32

Why you should use eCHAP

The purpose of eCHAP is to assist small to medium sized workplaces to:

- Better understand the hazards associated with the chemicals they are using; and
- Prioritize the most 'hazardous' chemicals for additional assessment of the control measures which are currently in-place.

Benefits to eCHAP include:

- It helps workplaces meet their WHMIS obligations
- It improves understanding by and communication with workers of the hazards posed by the chemicals they use
- It improves management of chemical hazards with a focus on improved control measures and protection of workers
- It is an easy-to-use software package that does not require internet access
- Results of the assessments reside on in-house computer systems and can be used to create improved chemical inventories

Background to eCHAP

Chemical safety within the workplace is important. However, understanding how hazardous different chemicals are can be difficult. Small and medium-sized workplaces often get much of their information on chemicals from the Safety Data Sheets that come with each chemical. The Safety Data Sheets have information on how hazardous the chemical is, and on the correct use of the chemical.

One way of assessing and ranking chemical hazards is through 'hazard banding'. In this approach, the hazards associated with a chemical are allocated to different 'hazard bands'. For example, a chemical assigned an "A" 'hazard band' is a 'low' hazard, up to an "E" 'hazard band', which is an 'extremely high' hazard. By looking at what 'hazard band' a chemical is allocated to, you are able to determine how hazardous the chemical is. For more information on hazard bands, visit the [Frequently Asked Questions](#) section.

An important consideration is that hazard banding was designed to be used for chemicals/mixtures that lack sufficient toxicological or health data to assign exposure limits. In Ontario, where eCHAP was developed, occupational exposure limits are available for only a select few chemicals. eCHAP helps users to understand how hazardous a chemical is, which is useful when an exposure limit is not available to compare monitoring results with and to justify control measures.

eCHAP is based in Microsoft Excel, an application many computers are usually expected to have in a workplace setting. It integrates a range of assessment approaches from the original CHAP and includes various functions to improve efficiency such as:

- Automatic completion of hazard banding assessments
- Search functions
- Sort functions
- Export function (to a Word document)
- Automatic deletion of duplicates

How to use eCHAP

This guide will assume that you are using a relatively recent version of eCHAP. Older versions of Excel (e.g. 1998, 2003) may lack the functions that were designed into the tool. It is recommended that eCHAP is used on Excel 2005 or newer. If you encounter any technical concerns/issues, please feel free to contact us using the information on the [Contact Page](#).

Note: the content of your sheets may slightly differ from what you see in this guide but the guide will still remain applicable to any updated versions. eCHAP is continuously undergoing changes to improve its usability and readability.

It is **recommended** that you learn to use eCHAP-Basic before eCHAP-Advanced. Features are similar but as the name suggests, are more advanced in eCHAP-Advanced.

Note: from this point forward, “hazard band” will be referred to as “hazard level”.

Once you open eCHAP-Advanced, you will be greeted by the Intro worksheet.

“Setting Priorities”
Chemical Hazard Assessment and Prioritization (CHAP)

Scroll to top

eCHAP-Advanced

Research Partners:

Ryerson University, Occupational Health Clinics for Ontario Workers, Centre de santé des travailleurs et travailleuses de l'Ontario, ONA (Ottawa Neurological Association), OPSEU/SEFPO, PSHSA.ca, CUPE-SCFP, UNIFOR, UGW METALLOS, Workplace Safety & Prevention Services*

“Setting Priorities” was funded by the Ontario Ministry of Labour through an OSHPIP Grant ROP 16-E-005. Funding was provided by Ryerson University.

eCHAP-Advanced was developed by Thomas Tenkate and Jeremiah Joo, School of Occupational and Public Health, Ryerson University, Toronto.

INSTRUCTIONS FOR USE (PLEASE READ BEFORE STARTING)

This tool is designed to help you categorize the hazard of your chemicals.

Before you start:
You will need your chemical inventory and each chemical's most recently updated Safety Data Sheet (SDS). Each SDS should be compliant with WHMIS 2015, as the assessment is based on key information from Section 2.

You must enable macros for this tool. Usually, macros are disabled as a security measure.
Windows: Enable them by clicking “Enable Content” on the message bar every time you open this file.
Mac: Enable them by clicking “Enable Macros” on the message box every time you open this file.
If you find the macros are disabled but the message bar is unavailable, then exit the file and reopen.

It is recommended that you learn how to use eCHAP-Basic first before using this Advanced version. eCHAP-Basic is designed to help you make an initial assessment of your top 10 chemicals (five that you use the most and five that you feel are the most hazardous). eCHAP-Advanced uses the same assessment approach but allows you to assess all the chemicals in your workplace.

User guides for both eCHAP-Basic and eCHAP-Advanced, as well as the eCHAP-Basic tool are available at:

Brief instructions:

1. List your chemicals/product names on the **Summary Sheet**. We have provided 100 rows for chemicals. If you wish to add more rows so you may add more chemicals, click the button on the top row of the “Summary Sheet” and “Hazard

Intro | Summary Sheet | Hazard Level Assessments | Review & Export | Hazard Codes & Statement ...

Intro worksheet

The Intro worksheet will contain information to help you get started using the tool.

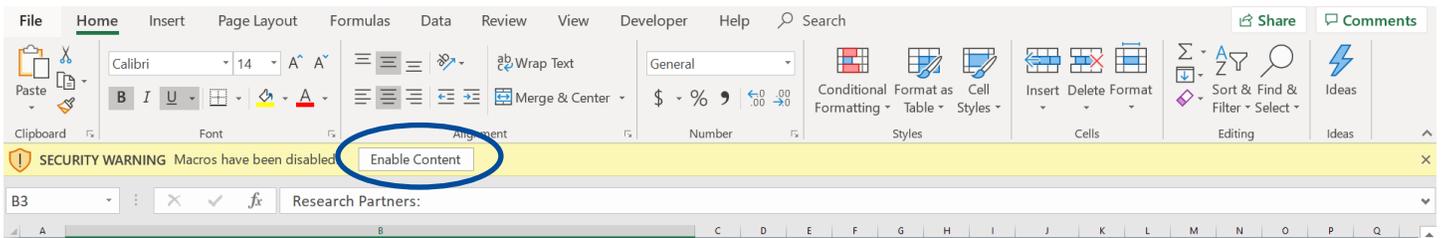
A few frequently asked questions are shown on the Intro worksheet. Alternatively, you may also view the “Frequently asked questions” section of this user guide.

Enabling Macros

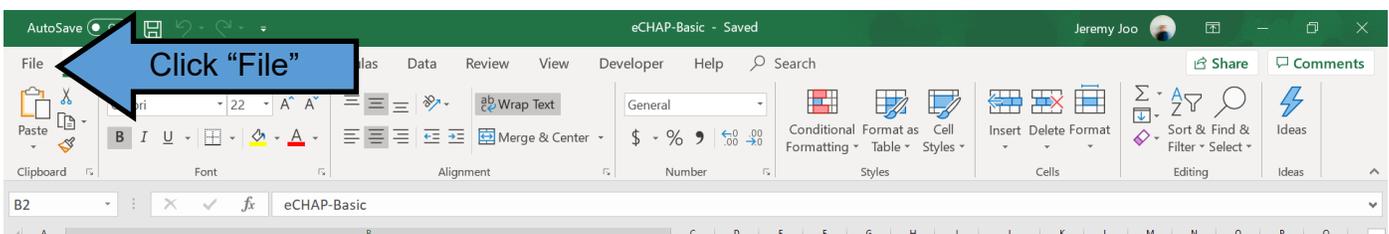
This next step is extremely important and must not be skipped.

Enabling macros is the **first step you should do, as you will not be able to use eCHAP-Advanced without enabling macros.**

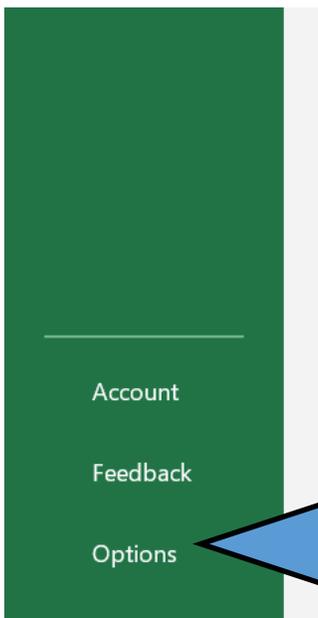
1) **Normally**, a text box will open at the top when you open the tool. When it does, click “Enable Content”, and the tool will function properly during your session.



2) If this text box does not open, either close and re-open the tool **OR**:



Click “Options” at the bottom of the opened window



Then click “Trust Center”

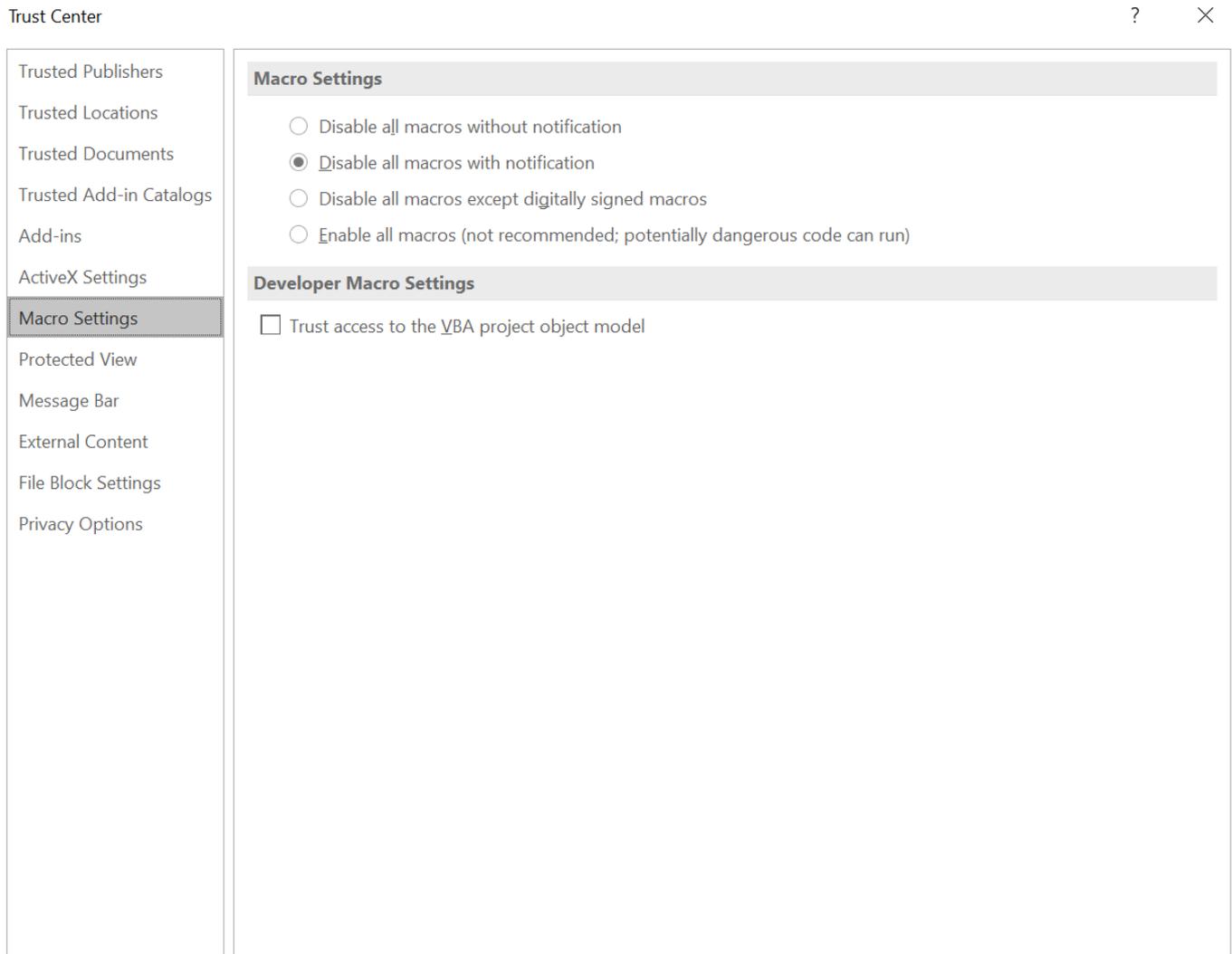
Then “Trust Center Settings”

Click “**disable all macros with notification**” if not clicked already.

Doing this will allow Excel, when opening eCHAP-Advanced, to enable macros.

It is not recommended that you enable all macros.

While the macros used in our eCHAP-Advanced are perfectly safe, it may not be the case for other Excel sheets you may encounter.



After this, close the window, close the tool, and reopen.

By this point, the notification should appear for you to enable macros for the tool.

If you would like insight into macros and what they are used for, visit the [Frequently Asked Questions](#) section of this User Guide.

Assessing chemicals

Now that macros are enabled, you can start your assessments.

You will need:

- 1) As many chemicals in your workplace inventory as you would like to assess, and
- 2) The most recent safety data sheet (SDS) for each chemical. Each SDS should comply with WHMIS 2015.

Summary Sheet

a) Visit the Summary Sheet by clicking on the “Summary Sheet” tab.

You will be greeted with the following:

“Setting Priorities”
Chemical Hazard Assessment and Prioritization (CHAP)

Add more assessments Search the Summary Sheet Find the Hazard Level Assessment Scroll to top Reset an assessment

Brief instructions
1. Enter worksite and contact information.
2. Enter the names of the chemicals for assessment. This can be an ongoing process as this tool has the potential to assess as many chemicals as you need to assess.
3. Enter any further identifying details about the chemicals in the 'Area/location/room' and 'Notes' cell for each chemical. 'Area/location/room' could be used to write the location stored or used, while the 'Notes' could be used for any other information, such as who uses the chemicals, what process they are used in, etc.
4. Go to the **Hazard Level Assessments** to complete each assessment for your entered chemical names. This can also be an ongoing process as this tool has the potential to assess as many chemical as you need to assess.
5. Completed hazard level assessments will be automatically transferred back to this **Summary Sheet** and will be seen in the **Hazard Level** column.
6. The Summary Sheet can be exported to MS Word using the **Review and Export** sheet. This sheet also allows you to sort the chemicals by hazard level and by area/location/room.

*** Notes:**
Hazard levels
A = Low Hazard
B = Moderate Hazard
C = High Hazard
D = Vary High Hazard
E = Extremely High Hazard
n.a. = Not Applicable
Hazard level is determined for each chemical/product.

Summary Sheet

Company name

Intro **Summary Sheet** Hazard Level Assessments Review & Export Hazard Codes & Statemen ...

We will introduce the purpose of the four grey rectangles/buttons in the blue bar later in this tutorial.

b) You may add identifiers if you like, which can help you to organize your Summary Sheet. Available options are your Company Name; the Specific Worksite this sheet applies to; the Contact Person for this sheet; and the Date Last Updated (which will automatically update based on the date eCHAP-Advanced is opened last). **See below:**

	Company name	
Specific worksite	<i>Name</i>	
	<i>Address</i>	
	<i>Phone number</i>	
	<i>Fax number</i>	
Contact person	<i>Name</i>	
	<i>Address</i>	
	<i>Phone number</i>	
	<i>Fax number</i>	
	Date last updated	Will update with current date

When you first use eCHAP-Advanced, you will have 100 rows to start, to list your chemicals (100 rows for 100 chemicals). Unlike eCHAP-Basic, you have areas to write the Area/location/room in which the chemical is used: this will help with organizing your eCHAP inventory.

Chemical/Product Name	Hazard Level	Area/location/room	Additional notes
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eCHAP-Advanced is designed for you to update it as your chemical inventory grows, and as you learn more information about your chemicals.

You do not need to fill out all the names right away, as you may expect to add more as time passes and as your inventory grows.

c) The names you input will label each hazard level assessment. Once adding the names, you can assess any chemical's hazard level.

Hazard Level Assessments

Unlike eCHAP-Basic, assessments for each chemical are all listed in one sheet “Hazard Level Assessments”. When you wish to assess your chemicals, select this sheet.

The screenshot displays the 'Summary Sheet' window with the 'Hazard Level Assessments' tab selected. A dialog box is open, prompting the user to search for a hazard level assessment. The spreadsheet content includes instructions for Step 1 and Step 2, and a table for recording hazard levels across various exposure routes.

Hazard Level			
Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic

An input box will appear each time you select the Hazard Level Assessments sheet/tab.

Find the hazard level assessment

Which Hazard Level Assessment are you looking for?
(You don't need to put the whole name)

OK

Cancel

This is a function that helps to improve efficiency of using the tool. The function allows you to search for the chemical you are looking to assess. More on how to use this function can be found in the [Assistive Buttons](#) section.

For each of the 100 rows on the Summary Sheet, there is a corresponding Hazard Level Assessment. For example, let's say Mixture A was listed in #1, and Mixture Z was listed in #100.

1		Hazard Level Assessment for		Mixture A			
Step 1: Physical & Environmental Hazard Statements/Codes				Hazard Level			
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.				Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
Highest hazard level for each 'Uptake Route'							
Highest hazard level for all 'Uptake Routes'							
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level.</i> Hover over this cell for additional instructions.				Overall hazard level			

100		Hazard Level Assessment for		Mixture Z			
Step 1: Physical & Environmental Hazard Statements/Codes				Hazard Level			
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.				Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
Highest hazard level for each 'Uptake Route'							
Highest hazard level for all 'Uptake Routes'							
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level.</i> Hover over this cell for additional instructions.				Overall hazard level			

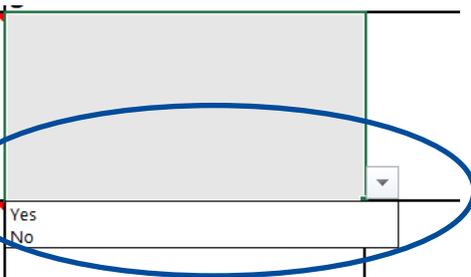
To start assessing the hazards of the chemicals, find the section in each chemical's SDS that contains hazard statements/codes. This should be Section 2 of the SDS.

Step 1: Physical & Environmental Hazard Statements/Codes

First, add if your chemical has any “physical hazard” and/or “environmental hazard” statements/codes. “Physical hazard” statements can include properties such as explosive, flammable, oxidizing; “physical hazard” codes start with H2. “Environmental hazard” statements can include aquatic toxicity and danger to ozone; “environmental hazard” codes start with H4.

If it has **any**, then choose **Yes**; if **not**, choose **No**. To do so, **click on the box to the right of Step 1, click the arrow to the box to open a dropdown menu, and select Yes or No.**

If you are unsure that your statement/code is a physical hazard or environmental hazard statement/code, view the “Hazard Codes & Statements” Tab/Sheet.

<p>Step 1: Physical & Environmental Hazard Statements/Codes Find Section 2 of the SDS and determine if the SDS has physical and/or environmental hazard statements/codes. Hover on this cell for additional instructions.</p>		
<p>Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.</p>		Eye

If your SDS has any physical hazard statements/codes and/or environmental hazard statements/codes, then without any health hazard statements, the chemical has an overall hazard level of B (see example below).

Chemical / Product 1: Mixture A					
Step 1: Physical & Environmental Hazard Statements/Codes	Yes				
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Hazard Level			
		Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
Highest hazard level for each 'Uptake Route'					
Highest hazard level for all 'Uptake Routes'					
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level.</i> Hover over this cell for additional instructions.	No	Overall hazard level	B		

Continue to the next page

If you would like to write down the statements/codes, use the Notes section in the Summary Sheet. The focus of eCHAP are human health hazards, so it has been designed to focus on the **health hazard statements**. You will notice that the overall hazard level will change between levels (i.e. B, C, D, D (E), and E), as you begin to add health hazard statements.

Step 2: Health Hazard Statements/Codes

You can add the health hazard statements/codes in the spaces shown under the appropriately named heading: “Health Hazard Statements/Codes”.

Click on the cells and click the arrow to open the dropdown menu that is available in each cell.

Scroll until you find the statement that aligns with the one you wish to input. Click on the statement.

Repeat in separate cells until all the statements from your SDS are inputted.

Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.	
1	
2	Causes damage to organs (or specific organ[s], if known)
3	Causes damage to organs (or specific organ[s], if known) through prolonged or repeated expo Causes eye irritation
4	Causes mild skin irritation
5	Causes serious eye damage Causes serious eye irritation
6	Causes severe skin burns and eye damage Causes skin irritation
7	
8	

Once the hazard statements are entered, you will see the corresponding “hazard codes” completed automatically. You will see letters to the right automatically added as well. These are the “hazard levels” that were mentioned in previous sections: categories that depict the hazard level. Once you add in all the statements/codes, you will have a completed assessment.

See the next page for an example of completing Step 1 and 2:

While each statement has corresponding hazard levels assigned to them, the assessment aims to find an **overall hazard level**, which is the highest hazard level out of all hazard levels shown.

All this is done automatically for you. In the example below, you can see that the highest hazard level for all uptake routes is D; thus, the overall hazard level is D.

Chemical / Product 1: Mixture A					
Step 1: Physical & Environmental Hazard Statements/Codes		Yes			
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Hazard Level			
		Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
1	Causes serious eye damage	H318	D	B	n.a.
2	May cause an allergic skin reaction	H317	B	C	D
3	May cause drowsiness or dizziness	H336	B	B	n.a.
4					
5					
6					
7					
8					
9					
10					
Highest hazard level for each 'Uptake Route'			D	C	D
Highest hazard level for all 'Uptake Routes'			D		
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level. Hover over this cell for additional instructions.</i>		No	Overall hazard level	D	

This will be automatically transferred to the Summary Sheet.

The Summary Sheet will automatically reflect any of the hazard levels found for your chemicals. Hazard levels are from E to A, with E being “extremely high hazard” and A being “low hazard”.

Step 3: D(E) Assessment

The box indicated below requires a response (Yes or No) **only** if your assessment reveals an overall hazard level of D (E). This results when your chemical has hazard statements such as fatal effects (H300/H310/H330) that are either “if swallowed”, “if inhaled” or “in contact with skin”. If you have any of these statements, review your SDS (usually Section 2).

If any Acute Toxicity (oral, inhalation, or dermal) is a category 1, then answer “yes”;
if not, answer “no.” To do so, **click on the box to the right of Step 3, click the arrow on the right of the box to open a dropdown menu, and then select Yes or No.**

Answering yes will mark your chemical as E; answering no will mark as D.

Step 3: D(E) Assessment <i>Skip this step if your assessment above <u>does not reveal a D(E) hazard level.</u></i> Hover over this cell for additional instructions.	<input type="button" value="▼"/>	Overall hazard level	D (E) Find if cat. 1 acute tox.
	Yes No		

If the chemical is a category 1 for Acute Toxicity, the D(E) hazard level will convert to an E:

Step 3: D(E) Assessment <i>Skip this step if your assessment above <u>does not reveal a D(E) hazard level.</u></i> Hover over this cell for additional instructions.	Yes	Overall hazard level	E
---	-----	----------------------	----------

If the chemical is not a category 1 for Acute Toxicity (e.g. 2, 3, 4), the D(E) hazard level will convert to a D:

Step 3: D(E) Assessment <i>Skip this step if your assessment above <u>does not reveal a D(E) hazard level.</u></i> Hover over this cell for additional instructions.	No	Overall hazard level	D
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Completing assessments

Completing assessments in eCHAP-Advanced is expected to be an ongoing process. You may over time add more assessments as your inventory grows or over time modify assessments when an SDS is updated. This tool is intended to grow with the workplace.

If you are wondering what you can do with your own assessment results, refer to the [What to do with results](#) page in this User guide or the **What to do with results** Tab/Sheet in eCHAP-Basic.

“Setting Priorities”
Chemical Hazard Assessment and Prioritization (CHAP)

What to do with assessment results

The hazard level assessment for each chemical provides a qualitative rating that is primarily based on human health effects. The hazard levels are:

- A = Low hazard
- B = Moderate hazard
- C = High hazard
- D = Very high hazard
- E = Extremely high hazard

These hazard levels do not take into account ‘exposure’ factors such as how the chemical is used, how much is used, what form is the chemical in (e.g. solid, liquid, powder), they do not account for any changes in chemical properties due to processing factors, and do not account for existing control measures.

However, the hazard level assessments from eCHAP provide you with important information on how hazardous a chemical is and provides the first component of a broader risk assessment.

As the health and safety risk to workers of using chemicals is due to both the hazardous properties of the chemical (as assessed by eCHAP), and the level of exposure workers have to the chemical (i.e. risk = hazard x exposure), reducing either the level of hazard or the level of exposure will decrease the risk to workers.

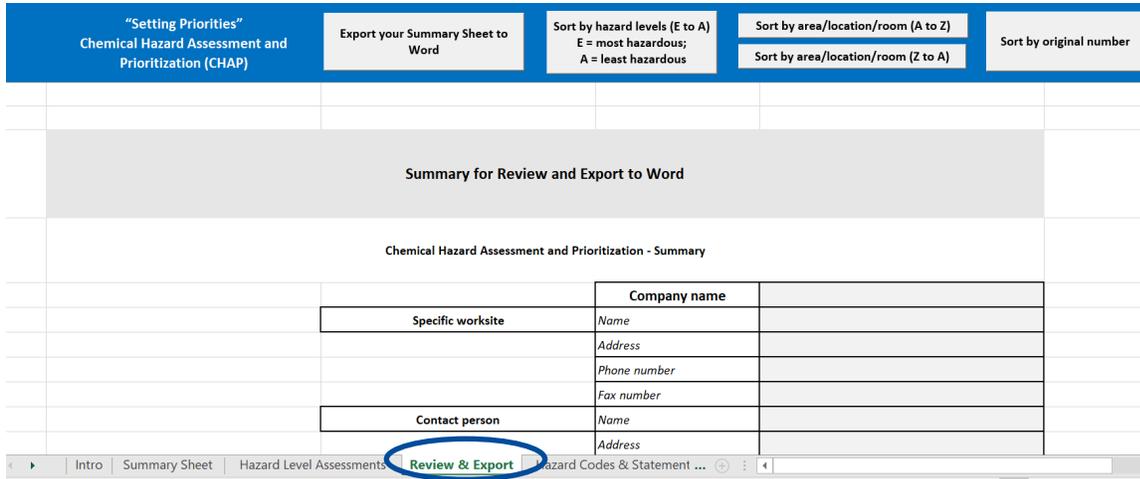
In managing worker health and safety risk, it is important to keep in mind the ‘hierarchy of risk controls’, which is shown in the following figure:

ELIMINATION

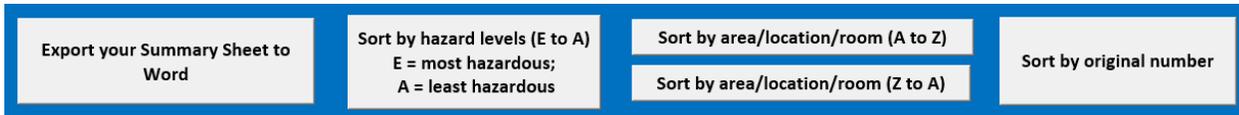
Review & Export | Hazard Codes & Statements | **What to do with results**

Optional step: Exporting the Summary Sheet to a Word document

If you wish to export your Summary Sheet to a Word document, do **not** attempt to cut and paste from the Summary Sheet tab. **Instead**, visit the **“Review & Export”** tab.



There are unique buttons here, not discussed earlier (along with the “Scroll to top” button).



Export your Summary Sheet to Word

Exports your Summary Sheet to a new Word document. This is the button users may use to export the Summary Sheet. This function can be useful if you wish to view your Summary Sheet on a different platform or would like to print a physical copy of it. A Word document will open with your Summary Sheet on it once this button is used.

On a Mac, this button will operate extremely slowly. It should still function properly but will require you to wait for an extended period.

Sort by hazard levels (E to A)

Sorts by hazard levels from E to A, which would help visually show which chemicals should be prioritized over others.

Sort by area/location/room

Two buttons, sorting by area/location/room that you have written (A to Z, or Z to A).

Sort by original number

Sorts by the original number that each chemical was listed under.

Assistive buttons

The tool is designed with buttons with various functions. These buttons are available on all sheets—each sheet has different ones. Buttons are always found at the top of each sheet. Even when scrolling, the buttons will still be visible. We will focus on the ones on the Summary Sheet and Hazard Level Assessments sheet first.

Summary Sheet:



Hazard Level Assessments:



Scroll to top (available on every sheet)

Scrolls back to the top of the sheet instantly.

Add more assessments

Adds more assessments. When clicked, the following input box opens:

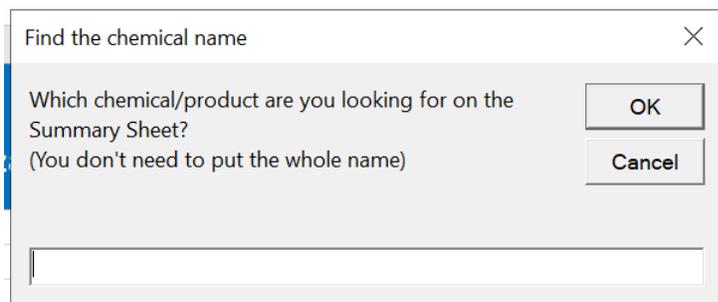
A dialog box titled 'Add more rows and assessments' with a close button (X) in the top right corner. The text inside reads: 'How many new rows for chemicals would you like to add? (Provide a whole number) We recommend up to 100 at a time, as larger numbers can cause freezing. Please ensure you have saved any changes before proceeding.' There are 'OK' and 'Cancel' buttons on the right side, and a text input field at the bottom.

You can only input numbers. If you add any input besides a number, this function will not work. **Avoid** putting numbers above 100. The tool needs to take time to add assessments, and the greater the number, the harder the demand on the system. The software may experience crashes in these circumstances. It is prudent to save your eCHAP-Advanced often and before you are attempting to add assessments.

Search the Summary Sheet

You can search for any chemical you inputted in the Summary Sheet by adding it in the input box that shows up when clicking this button. This search function works with partial searches.

When you click on this button, the following input box will open:

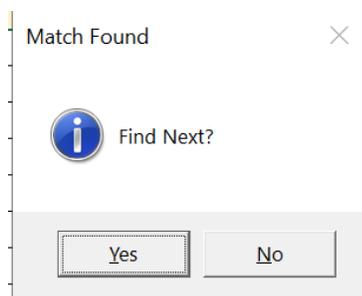


Enter what you are looking for in the space, then click **OK**.

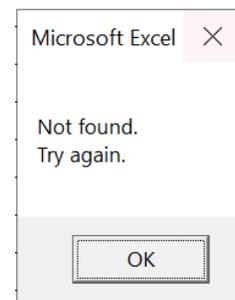
If you do not wish to use this function, click **Cancel**.

This search function cycles through all available matches.

Once inputting what you are looking for, it will display a “Match Found” message box (**see below**). You can then click **Yes** if what appears is not what you are looking for, and **No** if what appears is what you are looking for, thus exiting the search function.



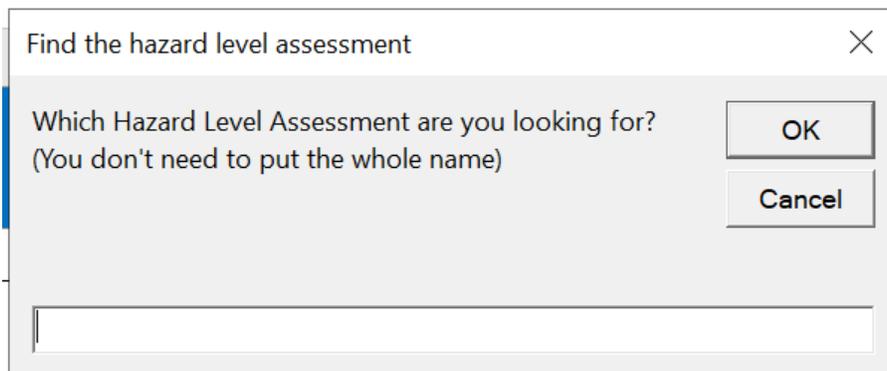
If there are no matches, then a message box will appear (**right picture**).



Find the Hazard Level Assessment

You can search for any hazard level assessment by searching what you are looking for in the input box that shows up when clicking this button. This search function works with partial searches. As mentioned in a previous section, this function also opens each time you select the Hazard Level Assessments sheet/tab.

When you click on this button, the following input box will open:



The image shows a dialog box with the title "Find the hazard level assessment" and a close button (X) in the top right corner. The main text inside the dialog asks, "Which Hazard Level Assessment are you looking for?" followed by a subtext "(You don't need to put the whole name)". Below the text is a large, empty rectangular input field. To the right of the input field are two buttons: "OK" and "Cancel".

Enter what you are looking for in the space, then click **OK**.

If you do not wish to use this function, click **Cancel**.

This search function cycles through all available matches. Similar to the "Search the Summary Sheet" button, you will be met with message boxes, indicating that there are matches or none, depending on whether your search matches anything.

Reset an assessment

This function allows you to reset all input in an assessment.

This button is optional; you may manually delete entries in assessments but this button helps to increase efficiency of doing so.

Let's say one of your assessments looks like the following, and you wish to reset it:

1 Hazard Level Assessment for		Mixture A				
Step 1: Physical & Environmental Hazard Statements/Codes						
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Hazard Level				
		Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic	
1	Causes serious eye irritation	H319	C	B	A	n.a.
2	Causes mild skin irritation	H316	C	A	A	n.a.
3	May cause an allergic skin reaction	H317	B	C	D	D
4	Suspected of damaging fertility or the unborn child	H361	B	C	n.a.	C
5						
6						
7						
8						
9						
10						
Highest hazard level for each 'Uptake Route'		C	C	D	D	
Highest hazard level for all 'Uptake Routes'		D				
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level.</i> Hover over this cell for additional instructions.		Overall hazard level		D		

By clicking on “Reset an assessment”, the following input box will open:

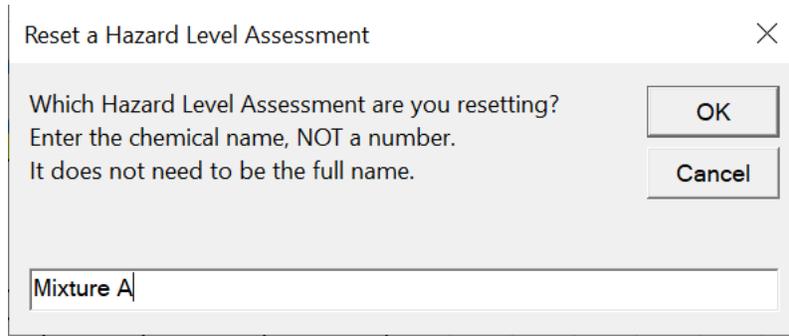
Reset a Hazard Level Assessment ✕

Which Hazard Level Assessment are you resetting?
Enter the chemical name, NOT a number.
It does not need to be the full name.

You must search for the name that labels the assessment. Partial searches are permitted.

If eCHAP-Advanced detects that you have inputted a search that is not in the same column as the name that labels the assessment (i.e. column D), then the Reset an Assessment function will end.

You would search for the chemical, which in this example is “Mixture A”.



A message box will open, with the options **Yes**, **No**, and **Cancel**.

If what is on your screen is the assessment you wish to reset, click **Yes**.

If it is not, click **No**.

The search function will cycle through all available matches, even with partial searches.

Click **Cancel** at any point if you no longer wish to use this function.

1 Hazard Level Assessment for		Mixture A
Step 1: Physical & Environmental Hazard Statements/Codes		
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		
1	Causes serious eye irritation	H319
2	Causes mild skin irritation	H316
3	May cause an allergic skin reaction	H317
4	Suspected of damaging fertility or the unborn child	H361
5		
6		
7		
8		
9		
10		
Highest hazard level for each 'Uptake Route'		
Highest hazard level for all 'Uptake Routes'		
Step 3: D(E) Assessment <i>Skip this step if your assessment above does not reveal a D(E) hazard level. Hover over this cell for additional instructions.</i>		
Overall hazard level		D

Hazard Level			
Eye Damage	Inhalation	Reset	
C	E	Is this the assessment you would like to reset?	
C	A	Yes	No
B	C	Cancel	
B	C		
C	C	D	D
D			

If you click **Yes**, you will be greeted with another message box to confirm your decision.

"Setting Priorities" Chemical Hazard Assessment and Prioritization (CHAP)		Add more assessments	Find the Hazard Level Assessment	Search the Summary Sheet	Scroll to top	Reset an assessment
1 Hazard Level Assessment for		Mixture A				
Step 1: Physical & Environmental Hazard Statements/Codes						
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.						
1	Causes serious eye irritation	H319				
2	Causes mild skin irritation	H316				
3	May cause an allergic skin reaction	H317				
4	Suspected of damaging fertility or the unborn child	H361				
5						
6						
7						
8						
9						
10						
Highest hazard level for each 'Uptake Route'			C	C	D	D
Highest hazard level for all 'Uptake Routes'			D			
Step 3: D(E) Assessment <i>Skip this step if your assessment above <u>does not reveal a D(E) hazard level.</u></i> Hover over this cell for additional instructions.		Overall hazard level D				

Confirm

Are you sure you want to reset this assessment?
You cannot undo this action.

Yes No

Click **Yes** if you are sure you wish to reset this assessment.

Click **No** if you do not wish to reset the assessment; the function will then end.

If you wish to use the function again, it will always be available to you at the top of "Hazard Level Assessments".

What to do with results

The hazard level assessment for each chemical provides a qualitative rating that is primarily based on human health effects. The hazard levels are:

A = Low hazard

B = Moderate hazard

C = High hazard

D = Very high hazard

E = Extremely high hazard

These hazard levels do not take into account 'exposure' factors such as how the chemical is used, how much is used, what form is the chemical in (e.g. solid, liquid, powder), they do not account for any changes in chemical properties due to processing factors, and do not account for existing control measures.

However, the hazard level assessments from eCHAP provide you with important information on how hazardous a chemical is and provides the first component of a broader risk assessment.

As the health and safety risk to workers of using chemicals is due to both the hazardous properties of the chemical (as assessed by eCHAP), and the level of exposure workers have to the chemical (i.e. risk = hazard x exposure), reducing either the level of hazard or the level of exposure will decrease the risk to workers.

In managing worker health and safety risk, it is important to keep in mind the 'hierarchy of risk controls', which is shown in the following figure:



Source: <https://sunsafetyatwork.ca/>

The 'hierarchy of risk controls' provides the underlying approach to identifying and implementing **control measures**. Using this hierarchy, the most effective controls should be implemented first, with the less effective controls implemented in order and only considered when control is not achieved using more effective controls.

Control measures can also be considered at three points between the source and the worker:

- The most effective control addresses the hazard at its source (through elimination or substitution)
- The next most effective level of control is to intervene between the source and the worker (i.e. through engineering controls and systems that increase awareness)
- The least favourable level of control is to implement measures at the point of the worker (i.e. administrative controls or personal protective equipment)

As indicated by this approach, the use of **personal protection** is the least favourable approach to controlling workplace hazards, even though it is often considered (mistakenly) as the control option of first choice. It should be clear that the reason for personal protection being the 'last line of defense' is that if it fails, the worker will be directly exposed.

In many cases, it is necessary to use a combination of control measures in order to effectively manage the risk of a hazardous exposure.

Using the hierarchy of risk controls as a guide, actions to take in response to the hazard level assessment results from eCHAP include (in order of preference):

- Is it possible to eliminate the use of the chemical altogether?
- If elimination is not possible, can the current chemical be substituted for a less hazardous chemical? Any potential substitute chemicals can be assessed using eCHAP to see whether they are less hazardous (i.e. have a lower hazard level).
- If elimination and substitution are not possible, what engineering control measures (e.g. local exhaust ventilation) are appropriate?
- What administrative control measures (e.g. training of workers, task rotation) are able to be implemented?
- What personal protection (e.g. safety glasses, gloves, respirators) are appropriate for workers to wear when handling the chemical?

As indicated previously, it is often necessary to implement a range of control measures (e.g. both substitution and personal protection). As such, an important response to the hazard level assessments is to review the current control measures that are in place and to assess how appropriate and effective they are. It is important to review *Section 8 – Exposure Controls/Personal Protection* of the SDS for each chemical to confirm what control measures are recommended for the chemical.

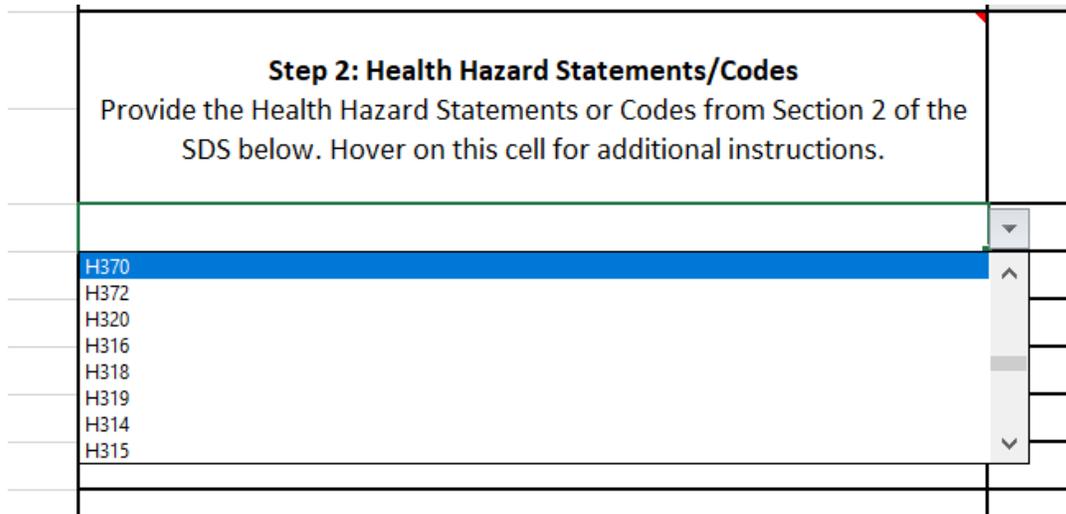
Given the resource constraints experienced by many small to medium sized businesses, undertaking an assessment of worker exposure and control measures for the chemicals which are the most hazardous (i.e. have the highest hazard levels) is a valuable first step to take once you have completed using eCHAP.

Frequently asked questions

Questions related to the assessment section

1. Can I use hazard codes instead of hazard statements?

Yes, you may. If you scroll down the dropdown menu far enough, you will reach a list of codes.



If you do put in a code, then the column next to it will be filled with the corresponding hazard statement. As always, the bands will be completed for you.

Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Hazard Level			
		Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
H333	May be harmful if inhaled	B	A	n.a.	n.a.

2. How do I delete my inputs?

If deleting a single cell's input:

Select a cell and backspace

OR

If deleting a single cell's or multiple cells' input:

Select cell(s), right-click, and click "Clear Contents".

3. How do I list my physical or environmental hazard statements/codes?

The only available space to do so is on the "Summary Sheet" in the Notes section for each chemical. You do not need to assess these formally, besides acknowledging that you have any.

4. My SDS shows more than 10 hazard codes/statements. What should I do?

There are only 10 available rows for statements in the Hazard Level Assessment Sheets.

If your SDS has more than 10 hazard statements/codes, try all of them and **exclude** the statements that have very low hazard levels (e.g. A, B), as they do not affect the overall hazard level as significantly.

5. My SDS has a hazard statement regarding a specific organ/system (e.g. lungs, liver), but the only statements available are for "organs (or specific organs, if known)" or "organs (or specific organs, if known) through prolonged or repeated exposure". What do I use?

Any statement regarding organs or specific organs have identical hazard levels. You may use the statements available. Use either "**causes damage to organs (or specific organs, if known)**" or "**causes damage to organs (or specific organs, if known) through prolonged or repeated exposure**" appropriately.

6. Are there any other ways I can add my statements/codes to the assessment, other than using the dropdown menus?

There are two other ways: using the search function or copy-and-pasting your inputs.

Search function:

If you type a part of your statement and press Enter, you will be greeted with a search function to find the statement you are looking for. For instance, let's say you input "May be" as you are looking for the specific statement "May be harmful in contact with skin." The first box that opens will be the first option the function was able to find.

Click **yes**, if what appears on the message box is the statement you **wish to input**.

Click **no** to cycle through the available statements that match with "May be" **until you see the one you are looking for**, then click yes.

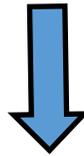
Click **cancel** at any point if you no longer wish to use the function (keep in mind that you will have to delete what you input or try typing what you wished to type again)

The screenshot displays the "Setting Priorities" interface for the Chemical Hazard Assessment and Prioritization (CHAP) tool. The main window is titled "Step 2: Health Hazard Statements/Codes" and contains a table with 10 rows. The first row has a dropdown menu open, showing "May be". A "Match Found" dialog box is overlaid on the table, asking "Is this the statement/code you wish to input?" and listing "May be fatal if swallowed and enters airways" as a match. The dialog box has "Yes", "No", and "Cancel" buttons. The table also includes a "Hazard Level" section with columns for "Inhalation", "Local Skin Damage", and "Skin uptake, systemic".

"Setting Priorities" Chemical Hazard Assessment and Prioritization (CHAP)		Hazard Level		
Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Inhalation	Local Skin Damage	Skin uptake, systemic
1	May be			
2				
3				
4				
5				
6				
7				
8				
9				
10				
Highest hazard level for each 'Uptake Route'				
Highest hazard level for all 'Uptake Routes'				

If you type the statement in its exact form, the search function will not open and you still will have your statement assessed.

<p align="center">Step 2: Health Hazard Statements/Codes</p> <p align="center">Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.</p>	
May be harmful in contact with skin	▼



1	May be harmful in contact with skin	H313	B	n.a.	n.a.	A
2						
3						
4						
5						

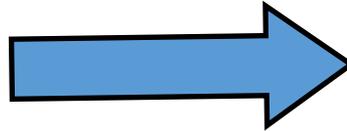
Copy-and-pasting:

Let's say you have a digital SDS or perhaps you typed down your statements beforehand in a document on your desktop computer/laptop.

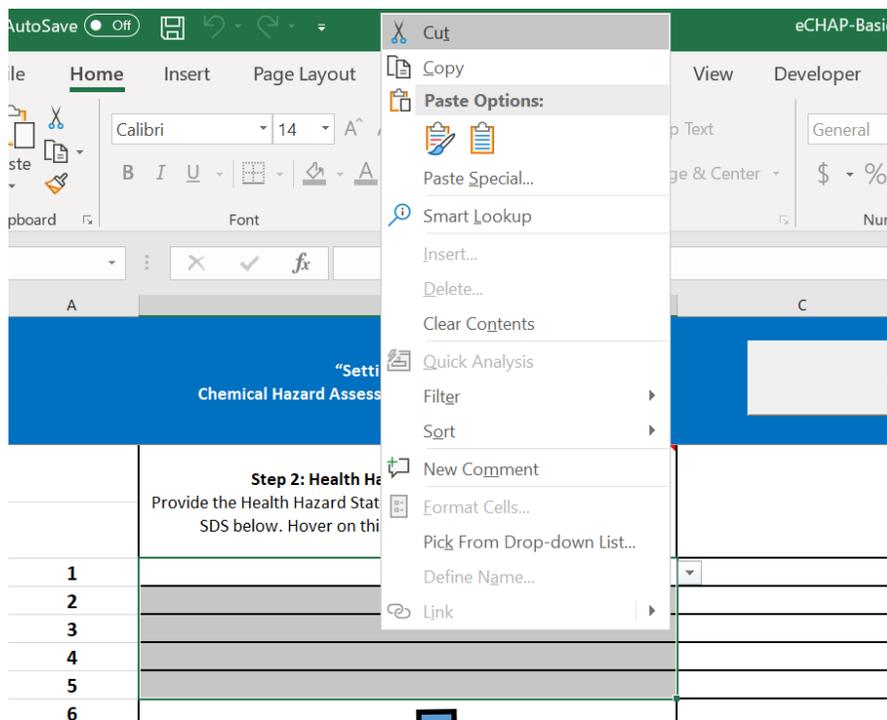
Each statement/code **must** be on separate lines before copy and pasting, for the function to work.

For example:

- Causes serious eye irritation
- May cause respiratory irritation
- May cause drowsiness or dizziness
- Suspected of damaging fertility
- May cause damage to organs through prolonged or repeated exposure



You would not need to type all of these statements separately. It could be more time-efficient to copy and paste your statements into available slots.



Step 2: Health Hazard Statements/Codes Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Hazard Level			
		Eye Damage	Inhalation	Local Skin Damage	Skin uptake, systemic
Causes serious eye irritation	H319	C	B	A	n.a.
May cause respiratory irritation	H335	C	B	A	n.a.
May cause drowsiness or dizziness	H336	B	B	n.a.	n.a.
Suspected of damaging fertility	H361	B	C	n.a.	C
Causes damage to organs through prolonged or repeated exposure	H372	B	D	n.a.	D
Highest hazard level for each 'Uptake Route'		C	D	A	D

7. Is there a function that will help get rid of duplicates in case I input multiple of the same statement?

Yes, eCHAP implements a duplicate finder function that sees if you have put the same statement multiple times and deletes the duplicates if this is the case.

In the example below, “Causes serious eye damage” is already listed.

Step 2: Health Hazard Statements/Codes	
Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.	
Causes serious eye damage	H318
<ul style="list-style-type: none"> Causes damage to organs (or specific organ[s], if known) Causes damage to organs (or specific organ[s], if known) through prolonged or repeated exposure Causes eye irritation Causes mild skin irritation Causes serious eye damage Causes serious eye irritation Causes severe skin burns and eye damage Causes skin irritation 	

When inputting a statement that is already listed, it will delete that input following a message box (see below). Once clicking **OK**, the duplicate will be deleted.

"Setting Priorities" Chemical Hazard Assessment and Prioritization (CHAP)			
Step 2: Health Hazard Statements/Codes		Hazard Level	
Provide the Health Hazard Statements or Codes from Section 2 of the SDS below. Hover on this cell for additional instructions.		Local Skin Damage	Skin uptake, systemic
1	Causes serious eye damage	B	n.a.
2			
3			
4			
5			
6			
7			
8			
9			
10			

Attention

One or more hazard statements/codes are duplicates and will be deleted.
Be careful not to put the same statement/code.

OK

Questions related to the tool's design and background

8. What are macros?

Macros are actions or a set of actions that can be designed in Microsoft Excel, specifically Visual Basic Applications. Normally, macros are used to increase efficiency of repetitive tasks. For example, a person could implement macros to read through a large dataset and delete any duplicates, rather than having to do it manually. When designing eCHAP, many macros were designed to improve eCHAP's usability.

9. Why can't I delete most rows, columns, or cells? Why can I not undo actions at times?

eCHAP is designed to be error-free and tamperproof. Many codes, formulae, macros that are designed into the tool depend on the sheet being exactly how it is made. For example, formulae in certain cells depend on what is in other cells; if a user did tamper with the tool, these formulae may no longer be applicable. We ask users of eCHAP to only input where you are allowed to input—fortunately, the tool is also protected with a password which should prevent tampering. Macros also erase the undo/redo actions, so when macros are performed, it is not possible to undo/redo the changes made by the macro.

eCHAP's system is not perfect so it is prudent to make multiple copies of an empty eCHAP form; your ongoing eCHAP form; and a completed eCHAP form in case you face concerns during your work sessions. Save often, as if you notice your sheet acting strangely or if you cannot undo/redo a change that must be reversed, then you can refer to past versions.

10. Where did the hazard levels come from?

The hazard levels used in CHAP and eCHAP come directly from a peer-reviewed article published in the journal *Regulatory Toxicology and Pharmacology*. It was authored by Mario Arnone, Dorothea Kopposch, Thomas Smola, Stefan Gabriel, Koen Verbist, and Remco Visser. The citation for the article is: Arnone, M., Kopposch, D., Smola, T., Gabriel, S., Verbist, K., Visser, R. Hazard banding in compliance with the new Globally Harmonised System (GHS) for use in control banding tools. *Regulatory Toxicology and Pharmacology* 2015; 73: 287-295. In this article the term 'hazard banding' is used to refer to the hazard levels assigned to hazard statements. However, for CHAP and eCHAP, we use the term 'hazard level' due to it being more easily understood by users.

Contact page

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