

## **Using the ERG**

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The Emergency Response Guidebook (ERG) provides summary information on potential hazards, public safety and emergency response to unintended releases of goods being transported by road, rail, air, water or pipeline. It is sometimes referred to as the North American ERG (NAERG) as Canadian transport requires the same systems. Training in use of the ERG is required for all levels of responder training (29CFR1910.120(q)(6)(i)(E)).

The ERG is issued every four years as a book and is also available in digital format for access on a computer, tablet, or smartphone (Android and iPhone). This exercise can be used for training with the book or digital format. An internet connection will be needed for the download but not for use of the app once it is loaded.

### **Objectives**

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When you have completed this exercise, you will be better able to:

- Identify hazard information using the ERG
- Identify response actions based on scenario provided
- Identify changes in tactical operations as conditions change

### **Review of the ERG**

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The Department of Transportation (DOT) system of placards and labels is required on hazardous materials during shipment. It is important to understand the systems which are used to identify hazardous materials. Hazard information is included on DOT placards fixed to large containers (trailers, rail cars, tanks) and manufacturer labels fixed to small containers (drums, packages, boxes).

Caution must be exercised, because labels and placards may be missing, incorrect, or difficult to read.

Below is an example of a DOT signage or label that might be seen on a truck, train, or cardboard shipping box.



Notice the....

Shape: diamond

Color: red

Symbol: a flame

4-digit number: 1075

1 digit number: 2

All DOT placards are the same shape but differ in the other “clues” that are shown.

The red color of this placard indicates the contents are flammable or combustible. A full listing of the hazard for each color is shown below.

<b>Color</b>	<b>Hazard</b>
Orange	Explosive
Red	Flammable or combustible gas or liquid
Green	Non-flammable gas
Yellow	Reactive
White with skull & crossbones	Toxic
White and red vertical stripes	Flammable solid
White top with black bottom	Corrosive
White top with red bottom	Spontaneously combustible
Blue	Water-reactive
Yellow top with white bottom	Radioactive
Black and white stripes on top, white bottom	Low to moderate hazard

The flame symbol on the example placard indicates the chemical is flammable. Other symbols are shown in the table below.

Symbol	Hazard
Bursting ball	Explosive
Flame	Flammable/combustible/dangerous when wet/organic peroxide
Skull and crossbones	Poisonous
Circle and flame	Oxidizing material
Gas cylinder	Non-flammable gas
Propeller/Trefoil	Radioactive
Test tube/hand/metal	Corrosive
Special symbol	Infectious

A **four-digit** number in the **center** identifies a specific compound. These numbers are identified in the ERG. For example, 1223 is kerosene. This number may be in the center of the placard (number placards) or on an orange-colored panel below the placard, along with a “word placard” such as the Flammable diamond shown below.

Number placards must be displayed on large portable tanks, tank trucks, and rail cars. A word placard means that drums or smaller containers are present.



To use the guidebook, you will search by either the chemical name or the four-digit identification number.

The **one-digit** number at the **bottom** is the Hazard Identification Code.

#	Hazard Class
1	Explosives
2	Gases (compressed, liquefied, or dissolved under pressure)
3	Flammable liquids and combustible liquids
4	Flammable solids: spontaneously combustible and dangerous when wet/water-reactive materials
5	Oxidizing substances and organic peroxides
6	Poisonous, poison inhalation hazard, and infectious substances
7	Radioactive substances
8	Corrosives
9	Miscellaneous hazardous materials

You can find more information on what these numbers and symbols mean in the ERG. For example, Class 1 is further divided into:

Division 1.1 Explosives with a mass explosion hazard

Division 1.2 Explosives with a projectile hazard

Division 1.3 Explosives with predominantly a fire hazard

Division 1.4 Explosives with no significant blast hazard

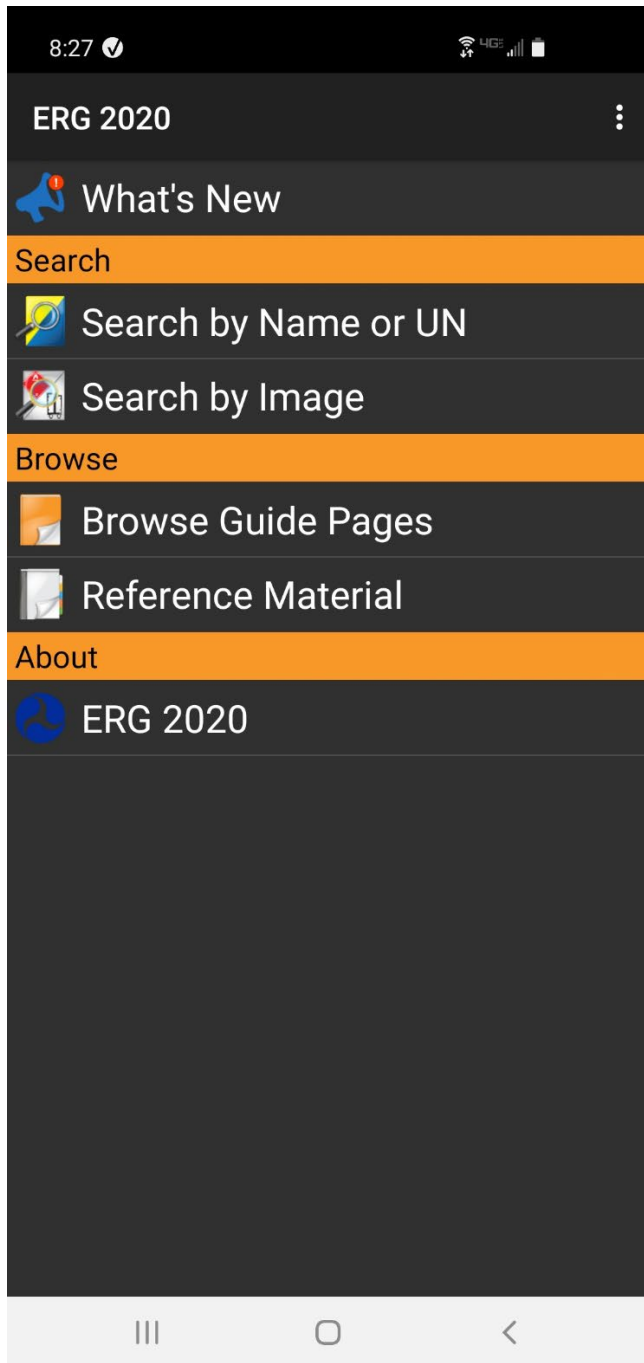
Division 1.5 Very insensitive explosives with a mass explosion hazard

Division 1.6 Extremely insensitive articles

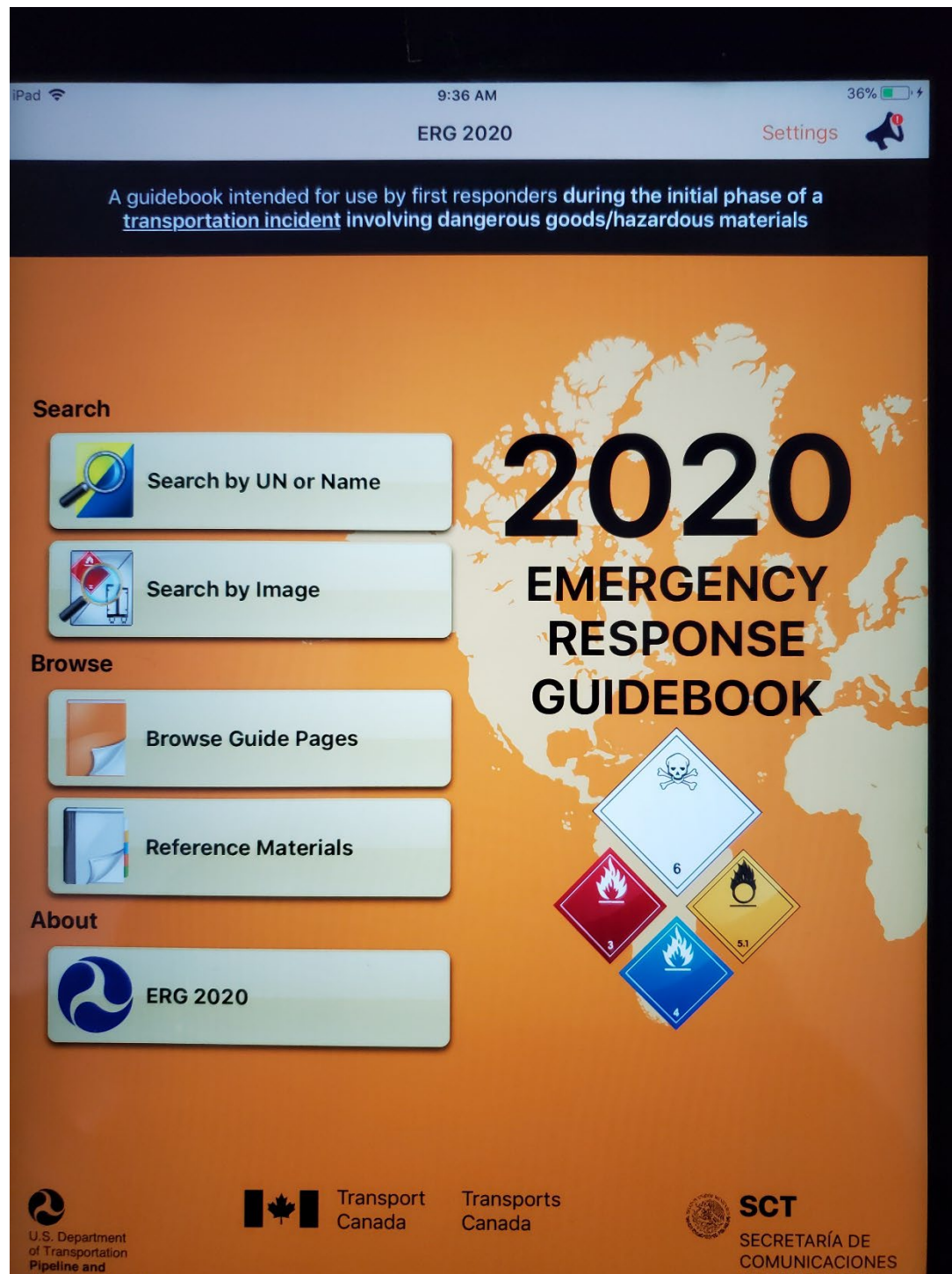
### Using the ERG app

When first opening the ERG, the home page will look slightly different depending on the device you are using, but will basically work the same way. Below is what the home pages will look like:

Home page for Smartphone (Android or iPhone):



Home page for iPad:



### Using the Emergency Response Guide

The ERG is divided into sections, each with its own color. The typical starting point is looking up a substance by name (blue pages), ID (UN) number (yellow pages) or image (placard, rail car, trailer).

**YELLOW:** The yellow pages list chemicals in numerical order based on their assigned ID number (UN number). If you are reading a placard or label which has a four-digit number in the center, you can look up the chemical name in the yellow pages, which will tell you the name of the chemical and the Guide number. When using the app, you simply type the number into the Search by Name or UN field.

**BLUE:** The blue pages list chemicals alphabetically by their name. From this listing you can determine each chemical's ID number and the Guide number. When using the app, you simply enter the chemical name into the Search by Name or UN field.

**ORANGE:** The orange pages are called the Guides. These pages are of use in determining the potential hazards of the chemical in question, with the greatest concern listed first. Additionally, the Guides give a brief description of the emergency action that should be taken by appropriate emergency response personnel. When using the book, you must first find the appropriate Guide Number by looking in the yellow or blue pages or referring to the Table of Placards. When using the app, you are immediately taken to the appropriate Guide Number when you select the chemical name, ID number, or placard (Note: with some chemicals you may receive guidance based on if a fire is involved before proceeding to the Guides).

**GREEN:** Some chemicals are also included in the green pages. The green pages indicate the Table of Initial Isolation and Protective Action Distances. This section of the ERG describes the distances necessary for initial isolation around a chemical incident as well as the distance downwind that persons must be protected.

**Book:** Chemicals that are highlighted green in the blue and yellow pages will be found in Table 1 (green pages). If the name of the material in Table 1 is followed by "(when spilled in water)", consult Table 2 for toxic gases produced. If there is an asterisk next to the ID number in Table 1, also consult Table 3.

**Smartphone:** If a chemical has green page, this will be indicated during your search and, in the orange pages, you will see at the top of the screen the words Initial Isolation and Protective Distances. You can access the green pages by swiping left.

**iPad:** The green pages information will automatically appear on the right side of the screen.

**Windows:** The green pages information will automatically appear at the bottom of the Guide.

In addition to the Protective Distance information found in Table 1 (green pages) some chemicals have information about toxic gases produced “when spilled in water” (Table 2). When using the app, this information is listed at the bottom of the green section, “TIH Gas(es) Produced when spilled in water”.

Six common TIH gases have additional information provided by type of container (Table 3). When using the app, this Table 3 information will be available at the same location as the other Protective Distance information.

**PLACARD:** The app also allows you to Search by Image of Placard, Rail Car, or Road Trailer by selecting this option on the home screen or navigator bar at the top. With your smartphone or iPad, select Search by Image and then scroll down and select the placard of interest, taking you to the appropriate page in the Guide (orange pages). You can navigate to the Rail Car and Road Trailer sections by swiping left (smartphone) or buttons at top (iPad).

**PROTECTIVE DISTANCE MAPPING:** Digital formats will display protective action distances in real time using your devices GPS location. From the Guide or green page, select the distance cone icon or ‘Map’ at the top of the page. You will be asked about the spill location, wind direction and speed, size of spill, container type, and time of day. You will then be able to view the protective distance area on the actual map of the spill area.

Other notes when using digital format:

- You can review the orange pages by selecting Browse Guide Pages on the home screen.
- You can look at the white and green reference pages and ‘How to use this app’ by selecting Reference Material on the home screen.
- When using a smartphone or iPad, selecting the picture of a book at the top of the screen will open the ‘User Guide’
- When using a smartphone, select the 3 dots at the top to return to the home screen or open Reference Help.
- When using an iPad, use the back arrow (<) at the top right to navigate menus.
- When using Windows, use the symbols at the top or ‘Search by’ to navigate.

If you want additional help, a How to Use the ERG video can be found here:

<https://www.phmsa.dot.gov/hazmat/erg/emergency-response-guidebook-erg>



### Exercise – Using the ERG

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The facilitator will provide an exposure scenario involving a hazardous material. Use the ERG to find information about the hazard. Use the information to describe operations level response actions. Continue to use the ERG as conditions change.

Complete the Worksheets provided and be prepared to share the decisions made in your group with the other participants.

### Closing

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Using the ERG, did you:

- Identify hazard information using the ERG
- Identify response actions based on scenario provided
- Identify changes in tactical operations as conditions changed

Based on this exercise, what takeaways do you have as you go back to work?

Please ask any remaining questions

## ERG Worksheet

(Instructor will provide ID number, container type, and time of day for your use on this exercise.)

**ID Number:** \_\_\_\_\_

**Container:** Rail Tank Car  Highway Tank Truck  150 lb. Cylinder  Drum   
Roll-Off Box  Crate

**Time of Day:** 2 a.m.  2 p.m.  **Wind Speed (if applicable):** \_\_\_\_\_

**Instructions:** Using the information in the *Emergency Response Guide*, answer the following questions, providing all significant information.

1. The substance is (you need to give only one name): \_\_\_\_\_
2. a. The Guide number that should be consulted for more information is: \_\_\_\_\_  
b. The Guide title is \_\_\_\_\_
3. The distance to allow for each of the following (feet or miles) is:  
a. Isolation \_\_\_\_\_ b. Evacuation \_\_\_\_\_

*[Use low end of range for small release, high end of range for larger release. If the distance cannot be determined or is not given in the Guide, put "N/A"]*

4. The primary hazard is due to: a. Health  b. Fire
5. Major fire or explosion hazards due to this type of material are (list up to three):

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6. Potential health effects from exposure to this material are (list up to three):

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7. What respiratory protection is recommended for responses to this material?

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