

Texas Emergency Management Conference 2019

Emergency Response Guidebook (ERG): Ins and Outs

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Technological Hazards Unit



Texas Department of Public Safety

DIVISION OF EMERGENCY MANAGEMENT

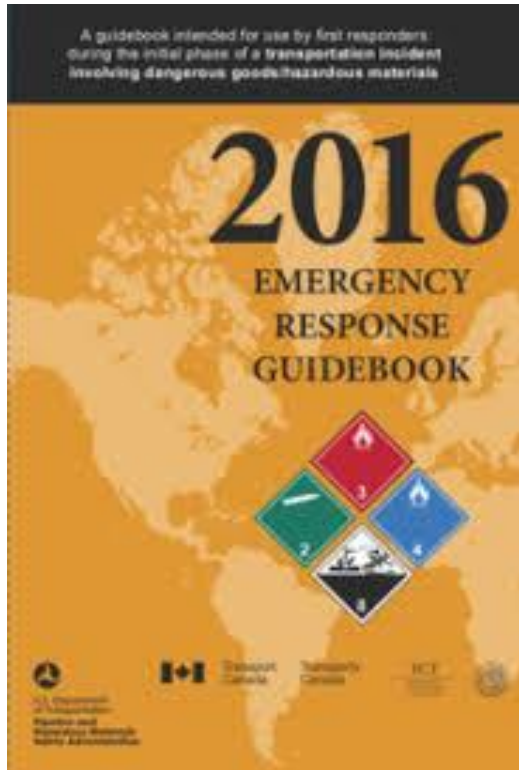
Learning Objectives

- Define the ERG
- 9 classes of hazardous materials
- Describe the colored sections



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What is the ERG?

- The Emergency Response Guidebook 2016 (or, ERG 2016) is a guidebook for use by first responders to assist in safely conducting operations on an incident involving dangerous goods or hazardous materials.
- Created by the U.S. Department of Transportation with intent to assist responders on transportation-related incidents, but useful for any emergency scene in which hazardous materials or dangerous goods pose a significant health or life safety risk.



Scene size-up: What to look for

- Placards, labels, or markings indicating presence of hazardous materials
- Container labels
- Rail cars or road trailers specific for carrying hazardous materials and dangerous goods
- Shipping documents or MSDS sheets if readily available to access
- Vapors, fumes, smoke, or spills
 - Whistling from a tank may indicate leak of gaseous material
 - Being close enough to smell odors emitted from hazardous materials may mean personnel are too close and in danger



Hazardous Materials Classes

- Class 1: Explosives
- Class 2: Gases
- Class 3: Flammable Liquids
- Class 4: Flammable Solids
- Class 5: Oxidizing Substances
- Class 6: Toxic and Infectious Substances
- Class 7: Radioactive Materials
- Class 8: Corrosives Substances
- Class 9: Miscellaneous



Placards

Nine Classes of Hazardous Materials

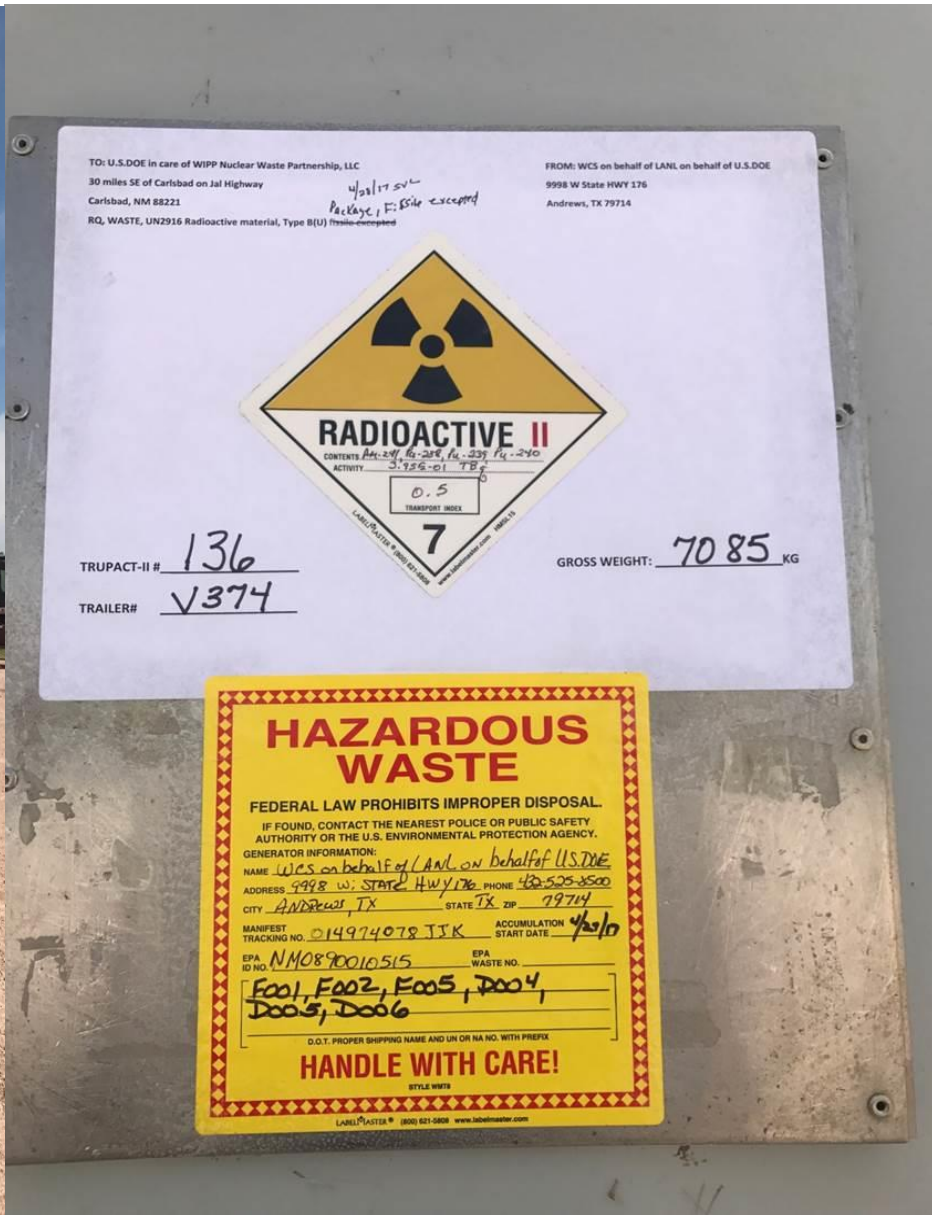
<p>Class 1: Explosives Divisions 1.1, 1.2, 1.3, 1.4, 1.5, 1.6</p>  <p>Class 6: Poison (Toxic) and Poison Inhalation Hazard</p> 	<p>Class 2: Gases Divisions 2.1, 2.2, 2.3</p>  <p>Class 7: Radioactive</p> 	<p>Class 3: Flammable Liquid and Combustible Liquid</p>  <p>Class 8: Corrosive</p> 	<p>Class 4: Flammable Solid, Spontaneously Combustible, and Dangerous When Wet Divisions 4.1, 4.2, 4.3</p>  <p>Class 9: Miscellaneous</p> 	<p>Class 5: Oxidizer and Organic Peroxide Divisions 5.1, 5.2</p>  <p>Dangerous</p> 
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Revised 04/13

Federal Motor Carrier Safety Administration

U.S. Department of Transportation
www.fmcsa.dot.gov





TO: U.S.DOE in care of WIPP Nuclear Waste Partnership, LLC

30 miles SE of Carlsbad on Jal Highway

Carlsbad, NM 88221

RQ, WASTE, UN2916 Radioactive material, Type B(U) (Fissile-excepted)

FROM: WCS on behalf of LANL on behalf of U.S.DOE

9998 W State HWY 176

Andrews, TX 79714



TRUPACT-II # 136

TRAILER# V374

GROSS WEIGHT: 7085 KG

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.

IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR INFORMATION:

NAME WCS on behalf of LANL on behalf of U.S.DOE

ADDRESS 9998 W. STATE HWY 176 PHONE 432-525-8500

CITY ANDREWS, TX STATE TX ZIP 79714

MANIFEST TRACKING NO. 014974078 JJK ACCUMULATION START DATE 4/20/17

EPA ID NO. NM0890010515 EPA WASTE NO. _____

F001, F002, F005, D004, D005, D006

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

STYLE W878
LABELMASTER® (800) 621-0808 www.labelmaster.com



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Bill of Lading (BOL)

3. SHIPPING DOCUMENT INFORMATION:

A. PACKAGE NUMBER: 0001
MATERIAL ID: UN2916
ERG GUIDE #: 163
MATERIAL NAME: WASTE RADIOACTIVE MATERIAL
CONTAINER: TYPE B (U) PACKAGE
FISSILE: Y
HAZARD CLASS: 7
WEIGHT: 8463 KG
PHYSICAL FORM: SOLID/OXIDE
CHEMICAL FORM: TRANSURANIC WASTE
LABEL CATEGORY: RADIOACTIVE YELLOW II
HWY RTE CNTRLD: Y

B. PACKAGE NUMBER: 0002
MATERIAL ID: UN2916
ERG GUIDE #: 163
MATERIAL NAME: WASTE RADIOACTIVE MATERIAL
CONTAINER: TYPE B (U) PACKAGE
FISSILE: Y
HAZARD CLASS: 7
WEIGHT: 8230 KG
PHYSICAL FORM: SOLID/OXIDE
CHEMICAL FORM: TRANSURANIC WASTE
LABEL CATEGORY: RADIOACTIVE YELLOW II
HWY RTE CNTRLD: Y

C. PACKAGE NUMBER: 0003
MATERIAL ID: UN2916
ERG GUIDE #: 163
MATERIAL NAME: WASTE RADIOACTIVE MATERIAL
CONTAINER: TYPE B (U) PACKAGE
FISSILE: Y
HAZARD CLASS: 7
WEIGHT: 6389 KG
PHYSICAL FORM: SOLID/OXIDE
CHEMICAL FORM: TRANSURANIC WASTE
LABEL CATEGORY: RADIOACTIVE YELLOW II
HWY RTE CNTRLD: Y



Road Trailers and Rail Cars Identification Chart

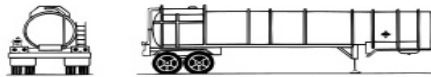
ROAD TRAILER IDENTIFICATION CHART*



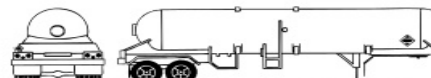
DOT406, TC406, SCT-306
Non-pressure Liquid Tank
(MC306, TC306) **131**



DOT407, TC407, SCT-307
Low Pressure Chemical Tank
(MC307, TC307) **137**



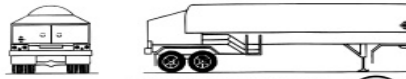
DOT412, TC412, SCT-312
Corrosive Liquid Tank
(MC312, TC312) **137**



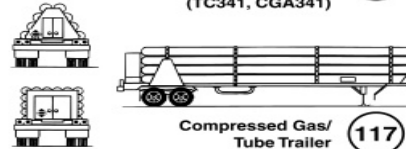
MC331, TC331, SCT-331
High Pressure Tank **117**



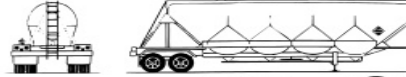
DOT407, TC407, DOT412, TC412
Vacuum Loaded Tank
(TC350) **137**



MC338, TC338, SCT-338
Cryogenic Liquid Tank
(TC341, CGA341) **117**



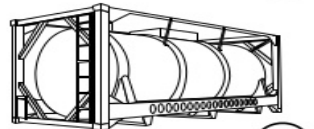
Compressed Gas/
Tube Trailer **117**



Dry Bulk Cargo
Trailer **134**

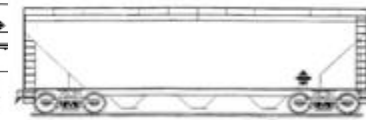


Mixed Cargo **111**



Intermodal Tank **117**

Rail Car Identification Chart*



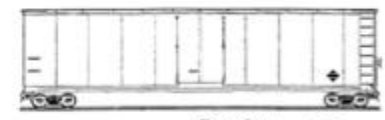
Hopper Car
Dry Bulk **140**



Pressure Tank Car
Compressed Liquefied Gases
(Closed Dome Only on top) **117**



Low Pressure Tank Car
Liquids
(Closed Dome and Outlets on top) **131**

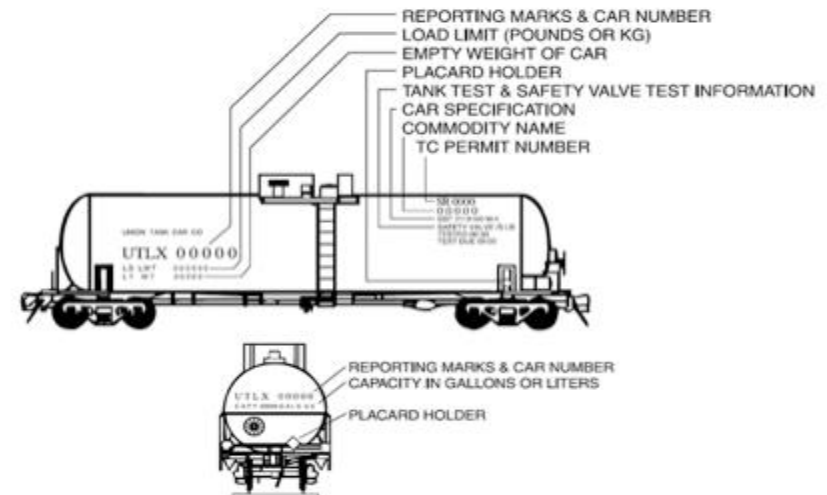


Box Car
Mixed Cargo **111**



CAUTION: This chart depicts only the most general shapes of road trailers. Emergency response personnel must be aware that there are many variations of road trailers, not illustrated above, that are used for shipping chemical products. The suggested guides are for the most hazardous products that may be transported in these trailer types.

* The recommended guides should be considered as last resort if the material cannot be identified by any other means.



Yellow Section

- ID Number Index
- ID Numbers are listed in numeric order from 1001 to 9279
- Follow Guide Number



Blue Section

Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Alcohols, toxic, n.o.s.	131	1986	Alkaloid salts, liquid, n.o.s. (poisonous)	161	3140	Allyl bromide	131	1099	Aluminum remelting by-products	138	3170
Aldehydes, flammable, poisonous, n.o.s.	131	1988	Alkaloid salts, solid, n.o.s. (poisonous)	161	1544	Allyl chloride	131	1100	Aluminum resinate	133	2715
Aldehydes, flammable, toxic, n.o.s.	131	1989	Alkylamines, n.o.s.	132	2733	Allyl chloroformate	155	1722	Aluminum silicon powder, uncoated	138	1386
Aldehydes, n.o.s.	129	1989	Alkylamines, n.o.s.	132	2734	Allyl ethyl ether	131	2335	Aluminum smelting by-products	138	3170
Aldehydes, poisonous, n.o.s.	131	1988	Alkylamines, n.o.s.	163	2735	Allyl formate	131	2336	Amines, flammable, corrosive, n.o.s.	132	2733
Aldehydes, toxic, n.o.s.	131	1988	Alkyl phenols, liquid, n.o.s. (including C2-C12 homologues)	163	3145	Allyl glycidyl ether	129	2219	Amines, liquid, corrosive, flammable, n.o.s.	132	2734
Aldol	153	2639	Alkyl phenols, solid, n.o.s. (including C2-C12 homologues)	163	2430	Allyl iodide	132	1723	Amines, liquid, corrosive, n.o.s.	153	2735
Alkali metal alcoholates, self-heating, corrosive, n.o.s.	136	3206	Alkyl sulfonic acids, liquid, with more than 5% free Sulfuric acid	163	2584	Allyl isothiocyanate, stabilized	155	1545	Amines, solid, corrosive, n.o.s.	154	3259
Alkali metal alloy, liquid, n.o.s.	138	1421	Alkyl sulfonic acids, liquid, with not more than 5% free Sulfuric acid	163	2586	Allyltrichloroethane, stabilized	155	1724	2-Amino-4-chlorophenol	161	2673
Alkali metal amalgam	138	1389	Alkyl sulfonic acids, solid, with more than 5% free Sulfuric acid	163	2583	Aluminum, molten	169	9260	2-Amino-5-diethylaminopentane	163	2946
Alkali metal amalgam, liquid	138	1389	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid	163	2585	Aluminum alkyl halides	135	3052	2-Amino-4,6-dinitrophenol, wetted with not less than 20% water	113	3317
Alkali metal amalgam, solid	138	1389	Alkyl sulfonic acids, liquid, with not more than 5% free Sulfuric acid	163	2586	Aluminum alkyl halides, liquid	135	3052	2-(2-Aminoethoxy)ethanol	154	3055
Alkali metal amides	139	1390	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid	163	2583	Aluminum alkyl halides, solid	135	3461	N-Aminoethylpiperazine	153	2815
Alkali metal amides	139	1390	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid	163	2585	Aluminum alkyl hydrides	138	3076	Aminophenols	152	2512
Alkali metal amides	139	1390	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid	163	2585	Aluminum alkyls	135	3051	Aminopyridines	153	2671
Alkali metal dispersion	138	1391	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid	163	2585	Aluminum borohydride	135	2870	Ammonia, anhydrous	125	1005
Alkali metal dispersion, flammable	138	3482	Alkylsulfuric acids	156	2571	Aluminum borohydride in devices	135	2870	Ammonia solution, with more than 10% but not more than 35% Ammonia	154	2672
Alkali metal dispersion, flammable	138	3482	Alkylsulfuric acids	156	2571	Aluminum bromide, anhydrous	137	1725	Ammonia solution, with more than 35% but not more than 50% Ammonia	125	2073
Alkaline earth metal alcoholates, n.o.s.	135	3205	Alkyl sulphonic acids, liquid, with more than 5% free Sulphuric acid	163	2584	Aluminum bromide, solution	154	2580	Ammonia solution, with more than 50% Ammonia	125	3318
Alkaline earth metal alloy, n.o.s.	138	1393	Alkyl sulphonic acids, liquid, with not more than 5% free Sulphuric acid	163	2586	Aluminum carbide	138	1394	Ammonium arsenate	161	1546
Alkaline earth metal alloy, n.o.s.	138	1393	Alkyl sulphonic acids, liquid, with not more than 5% free Sulphuric acid	163	2586	Aluminum chloride, anhydrous	137	1726	Ammonium bifluoride, solid	154	1727
Alkaline earth metal amalgam	138	1392	Alkyl sulphonic acids, liquid, with not more than 5% free Sulphuric acid	163	2586	Aluminum chloride, solution	154	2581	Ammonium bifluoride, solution	154	2817
Alkaline earth metal amalgam, liquid	138	1392	Alkyl sulphonic acids, solid, with more than 5% free Sulphuric acid	163	2583	Aluminum dross	138	3170	Ammonium dichromate	141	1439
Alkaline earth metal amalgam, liquid	138	1392	Alkyl sulphonic acids, solid, with more than 5% free Sulphuric acid	163	2583	Aluminum ferrosilicon powder	139	1395	Ammonium dinitro-o-cresolate	141	1843
Alkaline earth metal amalgam, solid	138	3402	Alkyl sulphonic acids, solid, with more than 5% free Sulphuric acid	163	2583	Aluminum hydride	138	2463			
Alkaline earth metal dispersion	138	1391	Alkyl sulphonic acids, solid, with more than 5% free Sulphuric acid	163	2585	Aluminum nitrate	140	1438			
Alkaline earth metal dispersion, flammable	138	3482	Alkyl sulphonic acids, solid, with not more than 5% free Sulphuric acid	163	2585	Aluminum phosphide	138	1397			
Alkaloids, liquid, n.o.s. (poisonous)	161	3140	Alkyl sulphonic acids, solid, with not more than 5% free Sulphuric acid	163	2585	Aluminum phosphide pesticide	157	3048			
Alkaloids, solid, n.o.s. (poisonous)	161	1544	Alkylsulphuric acids	156	2571	Aluminum powder, coated	170	1309			
			Allyl acetate	131	2333	Aluminum powder, pyrophoric	135	1383			
			Allyl alcohol	131	1098	Aluminum powder, uncoated	138	1396			
			Allylamine	131	2334	Aluminum processing by-products	138	3170			



Blue Section

- Name Of Material Index
- Materials are listed in alphabetical order
- Follow Guide Number



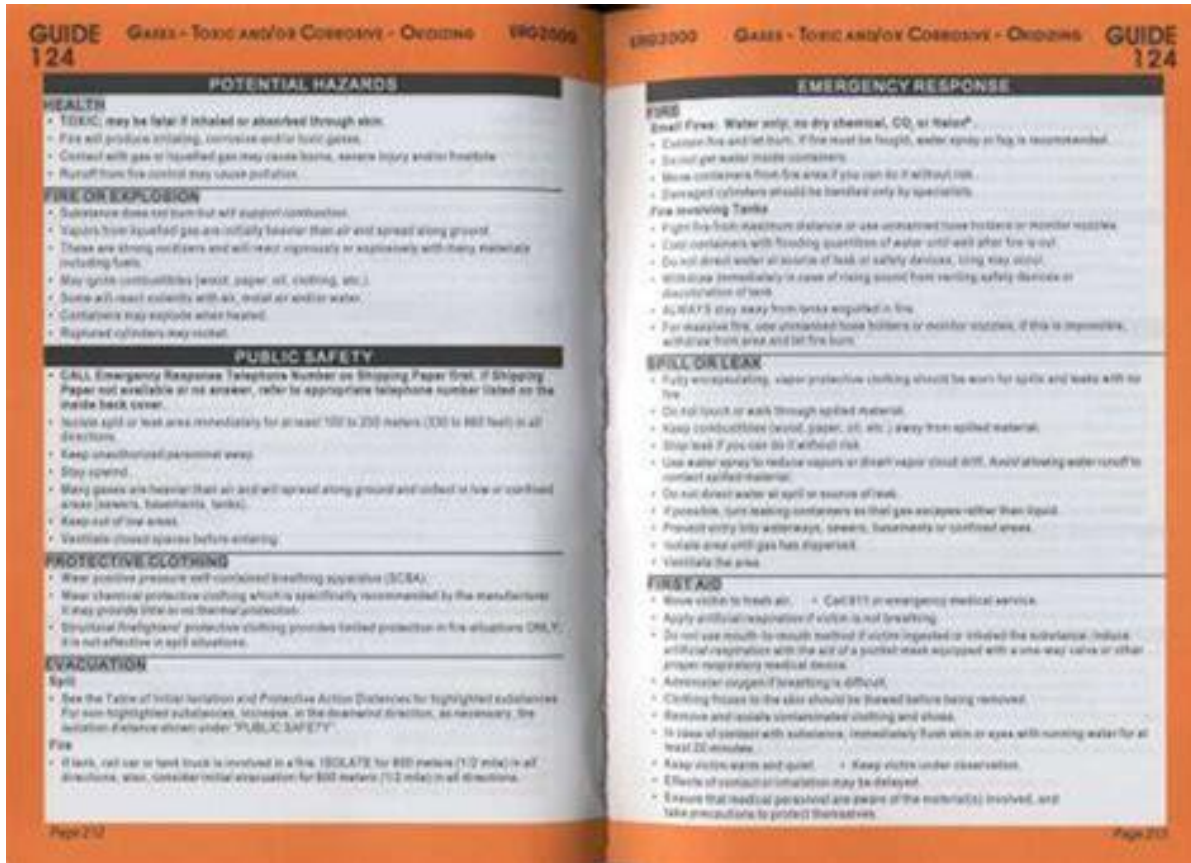
Yellow and Blue Section

If the hazardous material entry found in the Yellow or Blue sections is **Highlighted in Green**, follow these steps:

- If there is no fire:
 - Go directly to Table 1 in the Green Section
 - Look up the ID number and Name of Material
 - Identify initial isolation and protective action distances
- If there is a fire or a fire is involved:
 - Also consult the assigned Orange Section
 - Apply the evacuation information shown under Public Safety



Orange Section



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Orange Section

- Details how to respond to an incident involving the hazardous material that has been identified at the scene
- Potential hazards involved with this particular hazardous material
 - Fire or Explosion hazards
 - Health Hazards
- Public safety considerations
 - Protective Clothing recommendations
 - Evacuation recommendations



Green Section

TABLE OF INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

ID No.	NAME OF MATERIAL	SMALL SPILLS (Spills and leaks in confined areas)				LARGE SPILLS (Spills and leaks in unconfined areas)			
		Isolate		Protect		Isolate		Protect	
		Initial Distance		Initial Distance		Initial Distance		Initial Distance	
		Meters	Feet	Downwind (Meters)	Downwind (Feet)	Meters	Feet	Downwind (Meters)	Downwind (Feet)
100	Acetone, anhydrous	30m	100ft	120m	400ft	30m	100ft	120m	400ft
101	Acetone, anhydrous, stabilized								
102	Acetone, anhydrous, with heat								
103	Acetone, anhydrous, for HPL								
104	Acetone, anhydrous								
105	Acetone, anhydrous, for HPL								
106	Acetone, anhydrous, for HPL								
107	Acetone, anhydrous, for HPL								
108	Acetone, anhydrous, for HPL								
109	Acetone, anhydrous, for HPL								
110	Acetone, anhydrous, for HPL								
111	Acetone, anhydrous, for HPL								
112	Acetone, anhydrous, for HPL								
113	Acetone, anhydrous, for HPL								
114	Acetone, anhydrous, for HPL								
115	Acetone, anhydrous, for HPL								
116	Acetone, anhydrous, for HPL								
117	Acetone, anhydrous, for HPL								
118	Acetone, anhydrous, for HPL								
119	Acetone, anhydrous, for HPL								
120	Acetone, anhydrous, for HPL								
121	Acetone, anhydrous, for HPL								
122	Acetone, anhydrous, for HPL								
123	Acetone, anhydrous, for HPL								
124	Acetone, anhydrous, for HPL								
125	Acetone, anhydrous, for HPL								
126	Acetone, anhydrous, for HPL								
127	Acetone, anhydrous, for HPL								
128	Acetone, anhydrous, for HPL								
129	Acetone, anhydrous, for HPL								
130	Acetone, anhydrous, for HPL								



Green Section

- Initial Isolation and Protective Action Distances
- Recommends distances (in all directions) to isolate personnel and others from the hazardous material incident
 - Distance recommendations vary based on whether the spill/leak is considered "Small" or "Large"

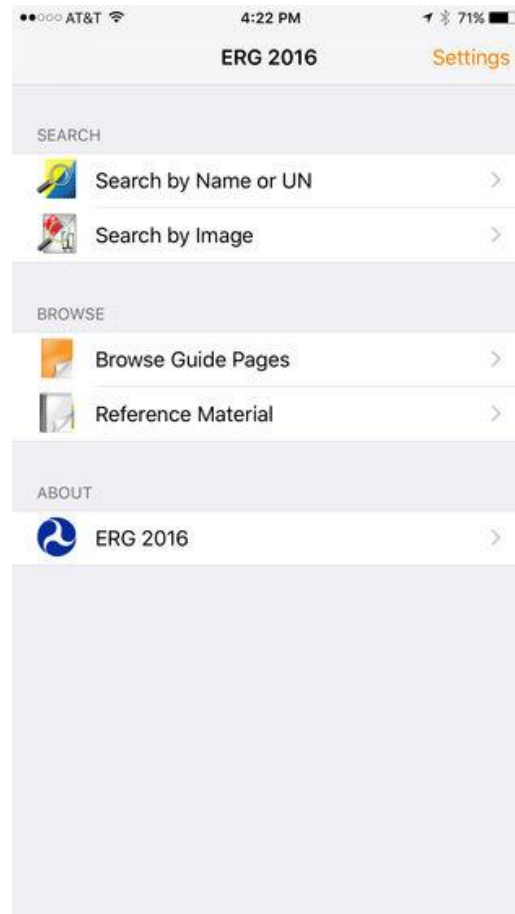


Limitations of ERG

- It should not be considered as a substitute for emergency response training, knowledge or sound judgment.
- Does not address all possible circumstances that may be associated with a dangerous goods incident.
- Designed for use at a dangerous goods incident occurring on a highway or railroad.
- Limited value in its application at fixed facility locations.



ERG Smart Phone App



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Waste Isolation Pilot Plant (WIPP)



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Thank You!

For More Information

For more information about this presentation, contact Jason Johnson, WIPP Planner, at jason.johnson@dps.texas.gov.



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