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CHLOREP Bulletin

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Subject: 2020 Emergency Response Guidebook

The US Department of Transportation (DOT), Transport Canada (TC), and Secretaria de Communicaciones y Transportes (SCT) publish the Emergency Response Guidebook (ERG), which provides valuable information to North American first responders during the initial phase of a dangerous goods/hazardous materials transportation incident. A new edition of this guidebook is published every four years, with the most recent edition being issued on August 5, 2020 in multiple languages (English, French, and Spanish).

In 2012 and 2016, The Chlorine Institute (CI) issued CHLOREP Bulletins that explained some changes included in both editions of the ERG compared to previous versions. The purpose of this bulletin is to highlight changes made in the 2020 ERG for chlorine and hydrogen chloride compared to the 2016 edition.

What has changed in the 2020 ERG?

For both chlorine and hydrogen chloride, some of the initial isolation and protective action distances were slightly adjusted in the 2020 edition compared to the 2016 edition. These revised distances are a result of continued analysis and improvement of dispersion modeling based on new toxicity data and reactivity research that primarily result from the Jack Rabbit II release tests and other related projects. The following tables provide the new 2020 distances, as well as the 2016 distances for comparison. The revised distances are highlighted in yellow. For the purposes of this bulletin, Table 3 is shown in miles per hour only, but the ERG also provides distances in kilometers.

ERG TABLE 1: Initial Isolation and Protective Action Distances

Year	Name of Material	Small Spills						Large Spills					
		First ISOLATE in all Directions		Then PROTECT persons Downwind during-				First ISOLATE in all Directions		Then PROTECT persons Downwind during-			
				Day		Night				Day		Night	
		m	(ft)	km	(Mi)	km	(Mi)	m	(ft)	km	(Mi)	km	(Mi)
2016	**Chlorine**	60	(200)	0.3	(0.2)	1.1	(0.7)	Refer to Table 3					
2020	**Chlorine**	60	(200)	0.3	(0.2)	1.4	(0.9)	Refer to Table 3					

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ERG TABLE 3: **Initial Isolation and Protective Action Distances for Large Spills for Different Quantities of Chlorine and Hydrogen Chloride**

Transport container	Year	UN 1017: Chlorine						
		First ISOLATE in all directions [ft]	Then PROTECT persons Downwind during					
			Day [mi]			Night [mi]		
			Low wind [<6 mph]	Moderate wind [6-12 mph]	High wind [>12 mph]	Low wind [<6 mph]	Moderate wind [6-12 mph]	High wind [>12 mph]
Rail tank car	2016	3000	6.2	4.0	3.2	7+	5.6	4.2
	2020	3000	6.3	4.2	3.3	7+	5.7	4.3
Highway tank truck or trailer	2016	2000	3.6	2.1	1.8	4.3	3.1	2.5
	2020	2000	3.6	2.1	1.8	4.3	3.1	2.5
Multiple ton cylinders	2016	1000	1.3	0.8	0.6	2.5	1.5	0.8
	2020	1000	1.3	0.8	0.6	2.5	1.5	0.8
Multiple small cylinders or single ton cylinder	2016	500	0.9	0.5	0.3	1.8	0.8	0.4
	2020	500	0.9	0.5	0.3	1.8	0.8	0.4

Transport container	Year	UN 1050 & UN 2186: Hydrogen Chloride						
		First ISOLATE in all directions [ft]	Then PROTECT persons Downwind during					
			Day [mi]			Night [mi]		
			Low wind [<6 mph]	Moderate wind [6-12 mph]	High wind [>12 mph]	Low wind [<6 mph]	Moderate wind [6-12 mph]	High wind [>12 mph]
Rail tank car	2016	1500	2.3	1.2	1.1	6.2	2.1	1.5
	2020	1500	2.5	1.2	1.2	6.3	2.2	1.5
Highway tank truck or trailer	2016	600	0.9	0.5	0.4	2.4	0.9	0.5
	2020	600	0.9	0.5	0.4	2.5	0.9	0.5
Multiple ton cylinders	2016	100	0.3	0.1	0.1	0.7	0.2	0.1
	2020	100	0.3	0.1	0.1	0.7	0.2	0.1
Multiple small cylinders or single ton cylinder	2016	100	0.2	0.1	0.1	0.6	0.2	0.1
	2020	100	0.2	0.1	0.1	0.6	0.2	0.1

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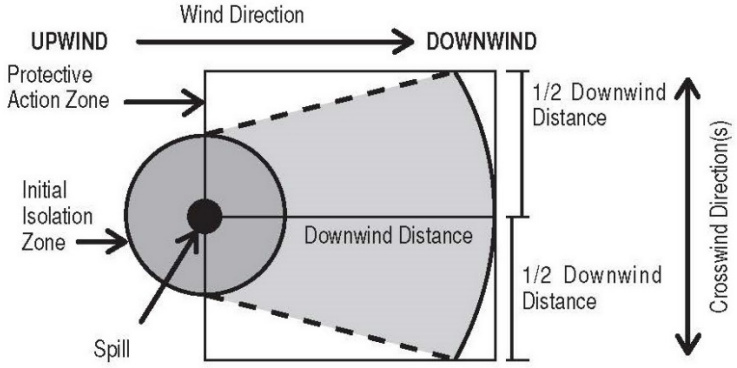
What is the difference between initial isolation distances and protective action distances?

Table 1 and Table 3 provide guidance for initial isolation and downwind protective action distances which include multiple measures of protection, including evacuation and shelter-in-place. It is important to emphasize that isolation and protective action distances are for initial on-scene consideration and are used for different purposes in the response.

Isolation Distances: These distances are less than the protective action distances and provide a radius zone (initial isolation zone) around the incident within which all public should be evacuated.

Protective Action Distances: Once the initial isolation zone is evacuated, then considerations should be made on how to protect the public within the protective action distance. This distance is downwind from the initial isolation zone covering a cone-shaped area and the public within the "cone" may be evacuated or sheltered-in-place (the schematic provided in the ERG is shown below). The Incident Commander must assess the situation, consider all elements, and determine the incident conditions (container size, time of day, wind speed) and the appropriate actions to take. Each incident is unique and decisions about protective action should be made on a case-by-case basis. Nothing in the ERG specifies that the protective action should always be an evacuation or should always be shelter-in-place. The protective actions taken should be reconsidered periodically throughout the emergency since incident conditions can change over time.



More details and guidance using these distances are provided with Table 1 at the beginning of the green pages in the ERG.

Where can I download information?

The 2020 ERG (in all languages), as well as the data tables, mobile app and other related information, can be downloaded from DOT's website:

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