



CLEANGUARD+ vs. Halotron®1

A Comparison



- The FK-5-1-12 agent that CLEANGUARD+ uses is five times safer for human beings than Halotron®1, based on Cardiotox LOAEL and Cardiotox NOAEL Acute Toxicity rankings.
- Thanks to that low toxicity, CLEANGUARD+ can be safely discharged in spaces approximately 90% smaller than the spaces in which it's safe to use Halotron®1. According to UL 1093 and 2129:
 - Halotron®1 can be used safely in a room with a minimum volume of 700 feet.
 - The FK-5-1-12 agent is approved for use in a room with a minimum volume of less than 90 feet.
- The CLEANGUARD+ FK-5-1-12 agent provides more environmentally friendly fire protection, with:
 - An Ozone Depletion Potential (ODP) of 0.0, compared to Halotron®1's potential of 0.0098.
 - A Global Warming Potential (GWP) of less than 1, compared to Halotron®1's potential of 79.
 - An Atmospheric Lifetime rating of approximately one week, compared to Halotron®1, which is rated at 1.3 years.
- As of May 2023, the CLEANGUARD+ FK-5-1-12 agent is not scheduled to be phased out under the Montreal Protocol. On the other hand, the production of 90% of Halotron®1's raw materials has been phased out since 2015.

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The FK-5-1-12 agent that CLEANGUARD+ uses is safer for occupants, as well as equipment:		Halotron®1	CLEANGUARD+ FK-5-1-12
	Acute Toxicity: Cardiotox LOAEL*	2%	10%
	Acute Toxicity: Cardiotox NOAEL*	1%	10%

*A higher percentage is less toxic.

Thanks to the FK-5-1-12 agent's lower toxicity, CLEANGUARD+ can be used in significantly smaller spaces than Halotron®1 can:		Extinguisher Class	Halotron®1	CLEANGUARD+ FK-5-1-12
	Minimum Room Volume for Approved Use† (per UL 1093 and 2129)	2-B:C	350 ft	40.27 ft
		5-B:C	700 ft	86.30 ft
1-A:10-B:C		1540 ft	149.59 ft	
Agent Quantity Required to Achieve Rating	2-B:C	2.5 lb	3.50 lb	
	5-B:C	4.75 lb	7.50 lb	
	1-A:10-B:C	9.5 lb	13.00 lb	

†As toxicity increases, so must the room volume.

- Less toxic agents can be safely discharged in smaller rooms
- This allow smaller rooms to be protected which would not be possible with more toxic agents

The CLEANGUARD+ FK-5-1-12 agent provides more environmentally friendly fire protection:		Halotron®1	CLEANGUARD+ FK-5-1-12
	Ozone Depletion Potential (ODP)	0.0098	0.0000
	Global Warning Potential (GWP)	79	<1
Atmospheric Lifetime	1.3 years	5 days	

As of May 2023, the CLEANGUARD+ FK-5-1-2 agent is not scheduled to be phased out under the Montreal Protocol:		Halotron®1	CLEANGUARD+ FK-5-1-12
	Scheduled Raw Material Production Phase-Out	90% by 2015	None

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