



Fire Code Regulations and Alcohol Based Hand Rubs



**Fire Code Summary
with FAQs and Definitions**

FIRE CODES & ALCOHOL BASED HAND RUBS

Fire Codes are developed and published by the National Fire Protection Association and the International Fire Code Council. These codes are then adopted and used by federal, state and local authorities around the world as a basis for building construction and inspection.

What are Alcohol Based Hand Rubs?

Alcohol Based Hand Rubs (ABHRs) have been safely used in healthcare settings for over 20 years and are recommended for use by leading health organizations such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO). ABHRs contain alcohol in order to help kill germs on hands and have been safely used for more than 30 years in European hospitals. The percentage of alcohol typically ranges from 60% to 70% (v/v), and this alcohol level causes ABHRs to be placed into Flammable Liquid categories by fire safety standards.

Local fire authorities have the final say.

When it comes to enforcement of fire codes, the authority at the most local level or authority having jurisdiction (AHJ), typically takes precedent. So, while it is a good practice to utilize national and state regulations to help guide your decisions, ultimately, the AHJ has the final say. When making decisions about placing ABHRs in a hospital facility it is important to involve team members and key decision makers at the healthcare facility with knowledge and responsibility for safety.

For more information:

Additional education sources on fire code safety include the following:

- The National Fire Protection Association (NFPA)
- International Fire Code (IFC)
- The Joint Commission (JAHCO)
- The American Society for Healthcare Engineering (ASHE)
- State and local fire safety information sources

Definitions

Control Area

Spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled. (IFC 2702.1)

Fire Compartment

A space within a building that is enclosed by fire barriers on all sides, including the top and bottom. (NFPA 3.3.43.1)

Smoke Compartment

A space within a building that is enclosed by smoke barriers on all sides including the top and bottom. (NFPA 3.3.43.2)

Flammable Liquid

A liquid having a closed cap flash point below 100° F (38° C). Flammable Liquids are further categorized into a group known as **Class I Liquids**. Class I category is subdivided as follows:

- **Class IA** Liquids having a flash point below 73° F (23° C) and having a boiling point of 100° F (38° C).
- **Class IB** Liquids having a flash point below 73° F (23° C) and having a boiling point at, or above, 100° F (38° C).
- **Class IC** Liquids having a flash point at, or above, 73° F (23° C) and below 100° F (38° C).

The category of Flammable Liquid does not include compressed gases and cryogenic liquids. (OAC 1301:7-7-34)

Flash Point

The minimum temperature in degrees Fahrenheit at which a liquid will give off sufficient vapors to form an ignitable mixture with air near the surface or in the container, but will not sustain combustion. (IFC 3402.1)

Level 1 Aerosol

Aerosol which has a chemical heat of combustion of less than or equal to 8,600 btu/lb (per IFC table 2803.1)

Acronyms

ADA

Americans with Disability Act

IFC

International Fire Code (part of the International Code Council – ICC)

NFPA

National Fire Protection Association (part of the Life Safety Code)

OAC

Ohio Administrative Code

FREQUENTLY ASKED QUESTIONS

Regulatory Compliance

- **How do fire code authorities define ABHRs?**

An alcohol-containing preparation designed for application to the hands for reducing the number of viable organisms on the hands and containing ethanol or isopropanol in an amount not exceeding 95 percent by volume.^{2,7}

- **How large can the packages of ABHR be?**

The maximum individual dispenser fluid capacity shall be:

a. 1.2 Liters (1200mL; 0.3 gallons) for dispensers in patient rooms, corridors and areas open to corridors.¹ The minimum corridor width is specified as 6ft.

b. 2.0 Liters (2000mL; 0.5 gallons) for dispensers in suites of rooms.¹

- **How much ABHR product can be stored in a control area?**

Storage of quantities greater than 5 gallons (18.9 Liters) in a single smoke compartment will need to meet the requirements of NFPA 30 Flammable and Combustible Liquid Code.¹ The maximum allowable quantity per control area is 120 gallons. The quantity shall be increased by 100% in buildings equipped with an approved automatic sprinkler system. Quantity shall be increased by 100% when stored in an approved storage cabinet.²

- **What are the requirements to comply with Americans with Disabilities Act (ADA)?**

a. Operation – The dispenser needs to be operable with one hand without grasping, pinching or twisting of the wrist and the force required to activate must not be greater than 5 lbf.⁴

b. Protrusion - Objects with their leading edges between 27 inches and 80 inches above the finished floor shall protrude no more than 4 inches into walks, halls, corridors, passageways or aisles.⁵

c. Accessibility - Dispensers should be mounted so the operating mechanisms are at a height less than 48 inches from the floor.⁶

Product Placement

- **What is the total amount of ABHR product that can be used in any one area?**

No more than 10 gallons (37.8 L) of ABHR shall be in use in a single smoke compartment.¹

One dispenser per room shall not be included in the aggregate quantity.⁸

- **How close can the ABHR dispensers be to each other?**

Dispensers shall be separated from each other by horizontal spacing of not less than 48 inches (1220 mm).

- **How close can the ABHR dispenser be to an electrical outlet?**

Dispensers should not be installed directly adjacent to, directly above, or below an electrical receptacle, switch, appliance, device, or other ignition source.² This rule has been formally interpreted by JAHCO to be 6 inches from the center line of the dispenser to the ignition source.

- **Is it acceptable to install the ABHR dispenser over a carpeted area?**

Yes, but dispensers installed directly over carpeted floors shall be permitted only in sprinkler smoke compartments.³

Product Specification

- **Are gels, foams, liquids and aerosol ABHRs all acceptable to use?**

Yes, but aerosol ABHRs were just recently added to the National Fire Code, so it would be prudent to check with your local fire marshal to confirm they have adopted the new standards before installing.

- **What is the maximum allowable level of alcohol content in an ABHR?**

95% isopropyl or ethyl alcohol.

- **Does NFPA and IFC allow Alcohol Based Hand Sanitizers to be used in Aerosol Dispensers?**

The NFPA and IFC allow aerosol containers however the maximum capacity of the aerosol dispenser must be 18 oz and be limited to Level 1 aerosols.

1. NFPA 101 Life Safety Code, 2009 Edition

2. International Fire code, 2006 Edition

3. NFPA 101 Life Safety Code, 2009 Edition; International Fire code, 2006 Edition

4. ADA section 4.27.4

5. ADA section 4.4.1

6. ADA sections 4.271 – 4.27.3

7. 2008 New York City Fire Code (as added by LL 26 of 2008 and amended by LL 37 & 41 of 2009)

8. 2012 Life Safety Code. 101-211a Log# CC655 SAF-HEA

2012 FIRE CODE REGULATIONS

Changes to the NFPA and IFC Codes that have impacted ABHRs

When ABHRs were first recognized by fire codes, the technology for touch free dispensers didn't exist, and all dispensers were essentially manual. Since that time, it has become more common for hand hygiene product dispensers to be touch free. NFPA and IFC have updated their codes to allow for use of touch free dispensers as long as they meet some basic requirements detailed in the code.

NFPA requires that no more than 10 gallons of ABHR be used in a single smoke compartment. With the 2012 updates of the NFPA Life Safety Code 18.3.2.6, one dispenser of ABHRs installed in a room shall not be included in the aggregate amount. IFC requires that no more than 10 gallons of ABHR be used in a corridor within a control area. It is reasonable to apply this to products installed in the actual corridor and not within a room.

The table below provides a detail overview of the 2012 Fire Code Regulation Changes as it relates to the 10 gallon limit calculation and touch free dispenser use.

	NFPA ¹	IFC ²
10 Gallon Limit Calculation	<p>18.3.2.6* Alcohol-based Hand-Rub Dispensers.</p> <p>(5) Not more than an aggregate 10 gal (37.8 L) of alcohol-based hand-rub solution or 1135 oz (32.2 kg) of Level 1 aerosols, or a combination of liquids and Level 1 aerosols not to exceed, in total, the equivalent of 10 gal (37.8 L) or 1135 oz (32.2 kg), shall be in use outside of a storage cabinet in a single smoke compartment except as otherwise provided in 18.3.2.6(6).</p> <p>(6) One dispenser complying with 18.3.2.6 (2) or (3) per room and located in that room shall not be included in the aggregated quantity addressed in 18.3.2.6(5).</p> <p><i>Extracts from the Report on Comments for the 2012 Life Safety Code, 101-211a Log #CC655 SAF-HEA</i></p>	<p>5705.51 Alcohol-based hand rub dispensers</p> <p>The 2012 IFC Code specifically segregates corridor installations. Within the corridor installation section the code indicates that there is a 10 gal quantity limit. It is practical to apply the 10 gal quantity limit to product actually installed in the corridor, not to product installed in rooms off corridors.</p> <p><i>2012 IFC, page 381</i></p>
Touch Free Dispenser Use	<p>18.7.3.3 Alcohol-based Hand Rub Dispensers</p> <p>(9) Operation of the dispenser shall comply with the following criteria:</p> <p>(a) The dispenser shall not release its contents except when the dispenser is activated, either manually or automatically by touch-free activation.</p> <p>(b) Any activation of the dispenser shall only occur when an object is placed within 4 in. (100 mm) of the sensing device.</p> <p>(c) An object placed within the activation zone and left in place shall not cause more than one activation.</p> <p>(d) The dispenser shall not dispense more solution than the amount required for hand hygiene consistent with label instructions</p> <p>(e) The dispenser shall be designed, constructed and operated in a manner that ensures accidental or malicious activation of the dispensing device are minimized.</p> <p>(f) The dispenser shall be tested in accordance with the manufacturer's care and use instructions each time a new refill is installed.</p> <p><i>Extracts from the 2011 Annual Revision Cycle Report on Comments, Comments on Proposal No: 101-193a</i></p>	<p>5705.5 Alcohol-based hand rubs classified as Class I or II liquids</p> <p>5. Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated "touch free" alcohol-based hand-rub dispensing devices with the following requirements:</p> <p>5.1 the facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer's care and use instructions.</p> <p>5.2 Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing device are minimized. At a minimum, all devices subject to or used in accordance with the section shall have the following safety features:</p> <p>5.2.1 Any activations of the dispenser shall occur when an object is placed within 4 inches of the sensing device.</p> <p>5.2.2 The dispenser shall not dispense more than the amount required for hand hygiene consistent with the label instructions as regulated by the US FDA.</p> <p>5.2.3 An object placed within the activation zone and left in place will cause only one activation</p> <p><i>2012 IFC, page 381</i></p>

¹http://www.nfpa.org/catalog/product.asp?title=2012-NFPA-101-Life-SafetyCode&pid=10112&src=catalog&order_src=A696

²<http://www.iccsafe.org/Store/Pages/Product.aspx?id=3400X12>



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