



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 levels typically takes precedent. So, while it is a good practice to utilize national and state regulations to help guide your decisions, ultimately, the local fire authority 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 anti micro-bacterial or other medicinal purpose and containing ethanol or isopropanol in an amount not exceeding 70 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
- 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

- **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?**

70% isopropyl or ethyl alcohol per NFPA.^{2*}

Alcohol Based Hand Sanitizers 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.

Fire Code Guidelines as it relates to Touch Free Dispensers

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.

Proposals to the NFPA Life Safety Code and the NFPA Uniform Fire Code addressing the requirements that touch free dispensers need in order to be compliant with the code have been submitted, discussed and approved. The IFC, the Life Safety Code and the Uniform Fire Code have all accepted the proposals at the committee level and are in process to be incorporated into the 2012 edition of each document.

*Higher Alcohol Levels

It is becoming more common for customers to desire hand sanitizers with a higher content of alcohol. Currently the IFC defines an ABHR as 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 70% by volume. (IFC 3402.1)

Proposals to the NFPA Life Safety Code and the NFPA Uniform Fire Code expanding the level of alcohol to a maximum of 95% were submitted, discussed and approved in committee. The IFC, the Life Safety Code and the Uniform Fire Code have all accepted the proposals and they are in process to be incorporated into the next edition of each document.



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innovation in hand hygiene and skin care.

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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)
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