NFPA 704 – 2007
FAQs

Responses to FAQs are prepared by NFPA technical staff to assist users in reading and understanding NFPA codes and standards. The responses, however, are not Formal Interpretations issued pursuant to NFPA Regulations. Any opinions expressed are the personal opinions of the author(s), and do not necessarily represent the official position of the NFPA or its Technical Committees. In addition, the responses are neither intended, nor should be relied upon, to provide professional consultation or services.

1. **What is NFPA 704?**

The standard provides a readily recognized, easily understood system for identifying specific hazards and their severity using spatial, visual, and numerical methods to describe in simple terms the relative hazards of a material. It addresses the health, flammability, instability, and related hazards that may be presented as short-term, acute exposures that are most likely to occur as a result of fire, spill, or similar emergency.

2. **Should I use this system in my facility?**

The 704 rating system is applicable to industrial, commercial, and institutional facilities that manufacture, process, use, or store hazardous materials. It is important to note that the standard is not applicable to transportation or for use by the general public. This is a relevant matter, because the NFPA 704 system is often confused with the placarding required by the Department of Transportation for hazardous materials. The standard is also not applicable to chronic exposures or to nonemergency occupational exposure.

3. Why should I use the NFPA 704 rating system?

The objectives of the system are:

- To provide an appropriate signal or alert for the protection of both public and private emergency response personnel
- To assist in planning for effective fire and emergency control operations, including clean-up
- To assist all designated personnel, engineers, plant, and safety personnel in evaluating hazards

As a side note, it will assist you to take an inventory of the chemicals while considering their relative hazards. During your inventory for the rating, you may find that you wish to eliminate unnecessary, out-dated or unusually dangerous chemicals.

4. How is the rating displayed?

The system is characterized by the "diamond shape" that is actually a "square-on-point" shape. It identifies the hazards of a material and the degree of severity of the health, flammability, and instability hazards. Hazard severity is indicated by a numerical rating that ranges from zero (0) indicating a minimal hazard, to four (4) indicating a severe hazard. The hazards are arranged spatially as follows: health at nine o'clock position, flammability at twelve o'clock position, and instability at three o'clock position. In addition to the spatial orientation that can be used to distinguish the hazards, they are also color-coded as follows: blue for health, red for flammability, and yellow for instability.

The six o'clock position on the symbol represents special hazards and has a white background. The special hazards in use are W, which indicates unusual reactivity with water and is a caution about the use of water in either fire fighting or spill control response, and OX, which indicates that the material is an oxidizer.

***5.* What other symbols can go in the special hazards quadrant of the "diamond"?**

The only authorized symbols are the W and OX symbols described above. The Committee wanted to keep the number of symbols low for emergency visibility and simplicity reasons. Many people ask about a "corr" for corrosive or "acid" for acids, but these hazards are already taken into account in the health rating.

***6.* Who can apply this system?**

While the system is basically simple in application, the hazard evaluation should be performed by persons who are technically competent and experienced in the interpretation of the hazard criteria as set forth in the standard. Often a qualified individual can determine the ratings in the facility using the data available from the manufacturer-supplied MSDSs. The technique to do the ratings is described in NFPA 704; the actual ratings for specific chemicals are not included in NFPA 704. The user is referred to two other NFPA documents that contain hazard property information, including the NFPA 704 hazard ratings: NFPA 49, Hazardous Chemicals Data, and NFPA 325, Guide to the Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids. These documents, including NFPA 704 can be found in the Fire Protection Guide to Hazardous Materials.

If a rating is not available in these documents, the NFPA 704 rating system can be used by the individual to rate their chemical of interest. It should be noted that local conditions would have a bearing on the rating. For this reason, even if your chemical is listed in one of these sources, you may still want to double-check the rating to ensure your conditions do not affect the listed rating.

7. **Where should I put the NFPA 704 placards (the hazard diamond) at my facility and how many placards should I use?**

The 2007 edition of NFPA 704 addresses this issue in Section 4.3, Location of Signs. At a minimum they should be posted on the two exterior walls of a facility, access to a room or area, or each principal means of access to an exterior storage area. It is prudent to consider that the placard is to provide quick hazard information for emergency responders; it should be visible in case of emergency where the responders are likely to enter. If there are numerous areas where the responders could enter, there should be numerous placards. The placement and quantity should be decided using your best judgment coupled with the advice from your Authority Having Jurisdiction about your particular circumstances.

8. **If I have many chemicals in a storage room, what should the NFPA 704 rating (hazard diamond) for the storage room be?**

The 2007 edition of NFPA 704 addresses this issue in Section 4.2.3.3, and provides 3 methods described in detail. Of course, as stated in NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, Section 4.2.3.1, professional judgment must still be used to increase or decrease the rating to more accurately assess the degree of hazard, perhaps due to quantities, or synergistic effects of the chemicals, etc.

9. **I have several chemicals for which I don't have ratings, and some of them are mixtures of chemicals. How can I get the rating?**

You may refer to the Fire Protection Guide to Hazardous Materials, which contains NFPA 325 and 49, which provide chemical ratings. If the chemicals are not found there, the ratings can be determined by using the Material Safety Data Sheet (MSDS) with the guidelines found in NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response to rate the chemical yourself.

The subject of mixtures is addressed in the newly revised NFPA 704, 2007 edition in Section 4.2.3.4. The Committee has rated very few mixtures of chemicals, so you will have to rate these yourself, using NFPA 704. Mixtures can often be rated conservatively by rating each of the individual components and using the highest number for health, flammability and instability (independently). As always, you will use judgment with the rating process since some of the chemicals can act synergistically different than the individual components and because the components will be present in different percentages, or other circumstances.

10. Where can I get NFPA 704 related materials?

Several items relating to the NFPA 704 chemical rating system can be purchased, including the following:
NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response. It is inevitable that you will have some chemicals that are not rated in the sources

below. NFPA 704 provides the criteria for rating the chemicals yourself, using the information often found on an MSDS. Even if the rating are available, it is important to read NFPA 704 to fully understand what the ratings mean, how to display them properly, and their purpose.
Haz-Mat Wall Charts. Consolidates vital NFPA 704 information at a glance.
Haz-Mat Wallet Cards. Wallet cards with vital NFPA 704 system at a glance.
Various other haz-mat decals, haz-mat labeling system. 3" vinyl and 6" vinyl signs. Call (800) 344-3555 for information, use the links above or visit NFPA's online catalog.
The Fire Protection Guide to Hazardous Materials, 13th edition available since April 2002. This all-in-one book contains much of the data contained in NFPA documents derived from hundreds of reference sources. The Guide contains the following:
NFPA 49: Hazardous Chemicals Data (325 chemicals in MSDS format)
NFPA 325: Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids (over 1300 chemicals in tabular format listing various data)
NFPA 432: Code for the Storage of Organic Peroxide Formulations (storage requirements, including organic peroxide classification and "diamond" ratings for 160 chemicals)
NFPA 491: Guide for Hazardous Chemical Reactions (3550 dangerous mixtures documented from real-life incidents)
NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas (parameters to determine degree and extent of hazardous locations for liquids, gases and vapors including NEC groups).
NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency Response (criteria for what "diamond" ratings mean, and how to rate chemicals yourself)
Data extracted from:
NFPA 77: Recommended Practice on Static Electricity (combustibility parameters and static electric characteristics)
NFPA 499: Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas (parameters to determine degree and extent of hazardous locations for dusts, including NEC groups)
NFPA 430: Code for the Storage of Liquid and Solid Oxidizers (oxidizer classification for 90 chemicals)
CD/ROM and Softbound book
Softbound book

To order, call (800) 344-3555 or visit NFPA´s Online Catalog.

11. **I recently noticed that NFPA 49, 325 and 491 (the chemical data standards) are no longer in my Fire Code set – what happened to them? Can I still get the information?**

Since data standards did not really lend themselves to the Committee process, these standards were withdrawn as Committee projects in 1998 and 1999. However, the updated information is available in the 13th edition of the Fire Protection Guide to Hazardous Materials. We hope to consolidate all of the chemical data found in all NFPA standards and have it available online in the future.

12. **What if I have additional questions?**

    For assistance with the application of NFPA 704, contact the staff liaison via email at nfpa704@nfpa.org