



NFPA/T2.13.1 R4-2007

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AN INDUSTRY STANDARD FOR FLUID POWER

Recommended practice – Hydraulic fluid power – Use of fire resistant fluids in industrial systems

(Revision of ANSI/(NFPA)T2.13.1 R3-1998)

Descriptors: hydraulic fluids power changing system contamination corrosive properties effects elastomers protective coating strainers filters foaming aeration operating temperature piping accessory precautions product descriptions safety exposure spills viscosity control wear resistant characteristics

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NATIONAL FLUID POWER ASSOCIATION, INC.

3333 N. Mayfair Road / Milwaukee, WI 53222-3219 USA

PHONE: +1 414 778 3344 / FAX: +1 414 778 3361 / E-mail: nfpa@nfpa.com

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Foreword

This Foreword is not part of National Fluid Power Association (NFPA) *Recommended practice – Hydraulic fluid power – Use of fire resistant fluids in industrial systems*, NFPA/T2.13.1 R4-2007.

At the 21 August 2001 Technical Board meeting, the group approved the NFPA/T2.13 recommendation to revise ANSI/(NFPA)T2.13.1 R3-1998. Mr. Carlin volunteered to serve as technical auditor for this project.

At the 22 October 2002 joint meeting of NFPA/T2.13 and NFPA/T3.19, the group approved a motion to revise the Title, Scope and Purpose (TSP) for a revision of NFPA/T2.13.1 R3-1998. The group also reviewed draft no. 1 of NFPA/T2.13.1 R4-200x, which included changes suggested by Mr. Michael and comments submitted by Mr. Wilcox. Mr. Michael agreed to update the document with all comments received and forward the updated draft to Headquarters, which would circulate the draft for General Review.

Headquarters circulated the updated draft for General Review on 13 November 2002, with a ballot closing date of 13 December 2002. The ballot resulted in 15 votes of approval, zero disapprovals, three abstentions and 52 persons not responding.

At the 13 February 2003 joint teleconference of NFPA/T2.13 and NFPA/T3.19, the group resolved the comments from the general review ballot and agreed upon the resulting changes to be made to the document. They agreed to recommend that the document be approved for circulation as a final ballot by the Technical Board, once commentators had responded to the group's replies to their comments.

On 1 April 2003, Headquarters circulated replies to commentators' comments from the General Review ballot, with a request that they respond to the NFPA/T2.13's replies on their comments.

At its 3 April 2003 meeting, the Technical Board approved NFPA/T2.13's recommendation that the document be submitted for final ballot.

The document was circulated for final ballot on 19 October 2006 and closed on 5 December 2006. The NFPA ballot resulted in three approval votes, zero disapprovals and three abstentions. No comments were received.

At the joint teleconference meeting of NFPA/T2.13 and NFPA/T3.19 on 14 December 2006, a motion was approved to ask the NFPA Technical Board for approval to publish the document. At its 12 April 2007 meeting, the Technical Board approved a motion to publish the document.

Project group members who developed this standard:

Paul W. Michael

Project Chair and
Fluids Technology Committee Chair
Milwaukee School of Engineering

Jerry Carlin

Technical Auditor
Eaton Corporation

Thelma Marougy

Fluids Technology Committee Vice Chair
Eaton Corporation

June M. VanPinsker*

Technical Coordinator
National Fluid Power Association

Paul Schacht

Bosch Rexroth Corp.

*no longer with company

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Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. One kind of fluid is a fire resistant fluid. A fire resistant fluid is defined as "a fluid that is difficult to ignite and shows little tendency to propagate flame." Fire resistant properties vary widely among the types of fluids. Therefore, fluid selection will depend upon the type of hazard and equipment involved. Additionally, fluid suppliers should provide information on fire tests performed that relate to the intended application.

In general, industrial fluid power equipment is designed for use with petroleum oils. When such systems are converted to use fire resistant fluids, re-evaluate the design features, test requirements, operational techniques, maintenance procedures, and life expectancy of components. Since this document presents only generalized recommended practices for the use of fire resistant fluids, contact fire resistant fluids suppliers and hydraulic component manufacturers for detailed consideration of any problem or complication that may arise.

Consider the environmental impact of these fluids prior to their use. Detailed discussion of this consideration is covered in another document, NFPA/T2.13.4.

Information given in fluid suppliers' specification sheets shows that fire resistant fluids differ widely in physical properties and in general lubrication values. Therefore, special consideration should be given to general lubrication values as well as fire resistance.

Recommended practice – Hydraulic fluid power – Use of fire resistant fluids in industrial systems

1 Scope

1.1 This recommended practice provides general educational information on the following aspects of each of the common industrial types of fire resistant fluids used in hydraulic fluid power systems:

- a) product description;
- b) operating temperature;
- c) foaming and aeration;
- d) corrosive properties;
- e) effects on protective coating;
- f) wear resistant characteristics;
- g) viscosity control;
- h) fluid stability;
- i) fluid exposure safety;
- j) spills;
- k) contamination;
- l) effects on strainers and filters;
- m) effects on elastomers;
- n) piping and accessory precautions;
- o) changing fluids in a system.

1.2 This recommended practice will:

- a) provide a composite reference of pertinent general data on fire resistant fluids;
- b) facilitate the design of industrial fluid power systems that use fire resistant fluids;
- c) improve the operation and increase the reliability of fluid power systems that use fire resistant fluids;
- d) clarify the maintenance of fire resistant fluids;