

Flame Arresters for Vents of Tanks Storing Petroleum Products

Downstream Segment

API RECOMMENDED PRACTICE 2210
THIRD EDITION, JUNE 2000



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1 Introduction

1.1 In addition to connections for liquid entry and withdrawal, every atmospheric fixed-roof tank requires a vent that allows escape or entry of air and/or vapors to avoid development of pressure or vacuum conditions sufficient to damage the tank during liquid transfer or changes in ambient conditions. This publication discusses the benefits and detriments associated with the use of flame arresters on these vents.

1.1.1 The provisions of this publication are intended for use when designing new facilities or when considering major expansions. It is not intended that the recommendations in this publication be applied retroactively to existing facilities. This publication also can be used as guidance when there is a need or desire to review existing facilities.

1.2 NFPA 30, *Flammable and Combustible Liquids Code*, lists various types of tanks and facilities that are subject to

Publ 2028 *Flame Arresters in Piping Systems*

RP12N *Recommended Practice for the Operation, Maintenance and Testing of Firebox Flame Arresters*

AICHE¹ (CCPS) www.aiche.org/docs/ccps
Guidelines for Engineering Design for Process Safety

FM² www.factorymutual.com
Approval Guide—A Guide to Equipment, Materials & Services Approved by Factory Mutual Research Corporation for Property Conservation

Class 6061 *Flame Arresters for Vent Pipes of Storage Tanks*

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A systematic evaluation based on engineering analysis and tests, supported by experience, show that there is no technical or experiential basis for requiring that an outdoor above-ground petroleum tank provided with a pressure-vacuum valve must also be equipped with a flame arrester.

For practical safety considerations the use of flame arresters for these vents is discouraged to avoid tank damage resulting from the introduction of a new failure mode, unless the user is able to institute the flame arrester maintenance necessary to ensure that the required venting capacity is maintained.

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