Safe Operation of Hydrofluoric Acid Alkylation Units

API RECOMMENDED PRACTICE 751
FIFTH EDITION, AUGUST 2021

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Shall: As used in a standard, “shall” denotes a minimum requirement in order to conform to the standard.

Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required in order to conform to the standard.

May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, Suite 1100, Washington, DC 20001, standards@api.org.

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1 Scope and Purpose

API 751 provides requirements (shall) and recommendations (should) for practices and procedures related to safety, operations, design, inspection, and maintenance to support the safe and reliable operation of Hydrofluoric acid (HF) alkylation units. Topics include hazard management; operating procedures and worker protection; materials, construction, inspection, and work practices; transportation and inventory control; pressure-relief, product treatment, and utility systems; and risk mitigation. This document contains requirements and recommendations that have been found effective based on broad industry acceptance, proven effective industry practices, testing, and regulatory requirements.

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes the requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API 510, *Pressure Vessel Inspection Code: In-Service Rating, Repair, and Alteration*

API 570, *Piping Inspection Code: In-service Inspection, Rating, Repair, and Alteration of Piping Systems*

API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*

NOTE Whenever API standards are referenced, where equivalent national standards exist, they may be used in accordance with other applicable regulations for non-U.S. jurisdictions.

3 Terms, Definitions, Acronyms, Abbreviations, and Symbols

3.1 Terms and Definitions

For the purposes of this document, the following definitions apply.

3.1.1
acid detecting paint
Acid detecting paint is a durable, industrial coating with a unique acid-sensitive component, which changes color (e.g. golden yellow to brilliant red) when exposed to an acid or acid vapor of pH 3 or lower. (Also known as “acid indicating paint.”)

3.1.2
acid relief neutralizer
ARN
This system is where the flow from acid-containing relief valves is routed to allow the acid to be neutralized before being routed to the non-acid flare system. Vapor flow is typically routed to the general refinery flare header once neutralized. This can refer to a flare gas scrubber (FGS), a relief gas scrubber (RGS), or an acid relief neutralizer (ARN).

3.1.3
acid soluble oil
ASO
Typically seen as the waste stream created by secondary or side reactions in the presence of feed contaminants or unfavorable reaction conditions. Ranges from light to heavy material and will vary depending upon reaction conditions. This byproduct may be referred to as polymer.