Stored product vapour will collect in the rim between the floating roof and the tank shell. This can mix with air when the rim seal is damaged, providing a hazardous mixture. Lightning or sparks produced by static electricity can cause a fire to occur. Hidden by the tank shell it may develop undetected until it reaches a dangerous intensity, possibly out of control.

As it is relatively simple to extinguish an incipient fire it is obvious that early detection is of utmost importance. Saval has understood this from the very beginning some 45 years ago and has incorporated this principle into all his designs. The latest development is based on the application of CF₃I (Trifluoriodomethane).

The extinguishing agent

CF₃I is a fluoromethane compound, colourless and odourless and with a vapour density of 6.9 times that of air. It is stored as a liquefied gas and superpressurised with nitrogen for more expelling energy.

Human safety

CF₃I has a low order of acute toxicity and the cardiac sensitization measurements indicate that the NOAEL is 0.2% and the LOAEL is 0.4%. CF₃I therefor is a highly suitable agent for use in unoccupied areas and for streaming applications such as on floating roof tanks.

Environment

CF₃I has the shortest atmospheric lifetime of all chemical extinguishing agents mentioned in NFPA 2001 viz. less than 1.5 days, and therefore the lowest GWP.

Extinguishing mechanism

CF₃I's mechanism of extinguishing fires is active and primarily based on interruption of the chain reaction in the combustion area of the flame by so-called "negative" catalytic action.

Fast acting

CF₃I is a very efficient fire suppression agent with even better characteristics compared to the banned Halons.

Safe for equipment

CF₃I is electrically non-conductive and non-corrosive, so it's safe for use even on electrically charged equipment. CF₃I leaves no particulates to damage equipment and requires no cleaning-up after a release.

Space and weight efficient

CF₃I systems on storage tanks with floating roofs require only a limited area and the weight of the storage vessels with instrumentation is the lowest of all available types of protection systems. As additional loads on floating roofs are often critical this is a very important advantage of these CF₃I systems.

- Day and night supervision and protection against fire
- Fast fire suppression
- Fast warning in case of fire
- Low cost and simple construction without any moving control parts
- Fully reliable
- Easy maintenance
- VdS system approval
Saval’s CFI™ rim seal protection systems for floating roof tanks are manufactured according the highest quality standards with regard to design, choice of materials and reliability. Saval’s CFI™ systems are the best available systems for application in marine industrial and environmentally hostile applications where reliability is required.

Technical description
The Saval CFI™ system for protection of rim seals on floating roof tanks is a fully prefabricated system and requires limited manpower for installation on the tank roof. Each storage tank has one or more independent systems (called sections), depending on the size of the tank. Each section consists of a circular pipe of a determined maximum length which is installed in the rim seal area between the tank shell and the roof and which is connected to a storage vessel containing the clean agent CF₃I (a liquefied fire extinguishing agent, superpressurised with nitrogen). Glass bulb activated sprayers made of corrosion resistant materials and platings are located at intervals along the pipe. The distribution pipe is permanently connected to and pressurised by the storage vessel. The storage vessel is designed to exact specifications and is externally treated with a high quality protective coating. Each storage vessel is provided with a contents level switch and a pressure switch. These switches are connected to intrinsically safe supervising loops in order to comply with the international explosion safety rules. When the level switch or the pressure switch is activated, a ‘trouble’ alarm will be given, When both switches are activated simultaneously this will create a “fire” alarm. These signals will be transferred to a central post.

In case of a fire its heat causes one or more sprayers to open, thus delivering the extinguishing agent directly into the fire area. “The fire is extinguished even before it is spotted”.

The combination of simple design and continuous supervision makes the Saval CFI™ system the key to real safety in floating roof tank storage facilities.

Engineering
Saval has supplied and installed CO₂-, Halon-, Clean Agent- and Dry Powder Systems all over the world for more than 50 years. During this period Saval has become the specialist in fire extinguishing systems. Research and field experience gained with these systems has been used to develop and improve the quality and reliability of these systems. For every application, the Saval team will offer a custom-designed system.

Quality Assurance and Quality Control
Saval has an integrated quality control system in accordance with the international standard ISO 9001, which is certified by Lloyd’s. This approval represents the total commitment of the entire organisation, not only in the production process but also for design, administrative procedures and after sales service.

Since 1925 Saval is a well known name in fire fighting. Saval is the only company in The Netherlands which produces the high quality range of extinguishers and hosereels itself. Therefore, Saval is always able to comply to the specific needs of their customers. With over 100 service employees in the field, Saval is always nearby. The head office and production facility are located in Breda. Since 2010, Saval is part of the SK Fire & Security Group.

Saval the fire protection specialists

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