

Date

**Subject:** Evaluation of the Evapostop vapour suppression disc with regard to the current fire protection systems on tanks

### ***Intention for evaluation***

The intent for conducting this test was to evaluate the influence Evapostop discs will have on the current fire protection in fixed roof tanks.

### ***The test criteria***

A round pit with a diameter of 4 meters was used to simulate a storage tank. The current foam pourers were simulated by using a spray curtain nozzle. A 450 l/min inline inductor and pickup tube used to introduce the foam to the foam pourers. The product used during this simulation was paraffin.

The testing of Evapostop disc was not done scientifically nor to scale and findings is merely for information purposes.

Tests were done at the Emergency Management Training Academy and the same type of foam concentration was used during all tests.

Testing was performed by Guilio Phillip, Shane Erasmus and Renier van der Merwe from the Emergency Management Engineering department.

### ***Test***

A controlled fire was initiated in the pit without the Evapostop discs using a gas fire lighter to ignite the product. Ignition of the product was instantaneous and spread rapidly across the whole surface. The fire was left to burn for approximately 2 minutes. It was then effectively extinguished utilizing the simulated foam pourer using minimal foam concentrate. Total extinguishment took less than 2 minutes.

After cleaning the pit and introducing new fuel the test was performed again, this time with Evapostop discs in place. Ignition of the product proved to be more challenging. The ignition was hampered by the small surface area of the exposed product. (See Fig 1) Once the pit was fully engulfed, it was noted that the flame size had significantly decreased. (See Fig 2)

While area was burring, the surface was disturbed to evaluate the fire conditions. The Evapostop disc repositioned and the flame height reduced back to initial state. (See Fig 3 and 4)

The same firefighting equipment previously used, was activated. The foam application had little effect on the fire. The Evapostop discs restricted the flow of the finished foam. (See Fig 5) This hampered the extinguishing of the fire. The foam-pourers proved to be less effective and consumed much more foam concentrate as with the fire not having the Evapostop discs.

The use of a hand held foam applicator was used to extinguish the fire. (See Fig 6) This firefighting action would not be possible when a fixed roof tank was burning.

Currently Evapostop discs are utilized in six tanks with in tank farm. They are 056TK-3601/2/3 and 056TK-3201, 056TK-3705/6. Sastech is currently performing environmental test to consider the use of Evapostop discs in tanks.

***Recommendations.***

- It is recommended that the fire protection philosophy concerning the Evapostop disc be evaluated.
- Consider other methods for vapour suppression that will enhance the fire protection and provide adequate vapour suppression on such tanks.
- Request fire protection equipment suppliers to investigate alternative fire extinguishing equipment and or systems that will adequately protect fixed roof tanks with Evapostop disc.

Sincerely,

Kind regards

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Fig 1



Fig 2



Initial surface disruption  
Fig 3



Post surface disruption  
Fig 4



Activation of foam pourers  
Fig 5



Hand held firefighting equipment utilised  
Fig 6