



INTERNAL CORRESPONDENCE

MATERIALS
ENGINEERING
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UNION CARBIDE CARIBE INC.

PONCE, PUERTO RICO

June 17, 1977

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SUBJECT: Phenol-Acetone Unit - Oxidizers Relief Manhead
Gasket Materials of Construction Recommendations

Teflon envelope Neoprene or teflon envelope Buna N are recommended as the materials of construction for the Phenol-Acetone Unit oxidizers manhead gaskets.

In view of a future ban of asbestos products by OSHA, the Phenol-Acetone Unit staff requested an alternative to substitute the current oxidizers relief manhead gaskets.

Currently, the Ponce Plant Phenol-Acetone Unit uses Garlock 7021, a white asbestos gasket, with excellent results. The Bound Brook Unit is using, to my understanding, Garlock 8554, felted blue asbestos gaskets for a similar service.

These gaskets are exposed to cumene hidroperoxide ranging from 6% to 24% in concentration at temperatures between 85°C and 93°C.

In view that Bound Brook had Viton A gaskets in cumene hidroperoxide with satisfactory service life which contrasts Dupont's Chemical resistance data for peroxides, a laboratory test was done to check on the possibility of Viton A as gasketing material for the oxidizers.

Viton A strips were immersed in 6% CHP and 24% CHP at a temperature range of 85°C to 93°C for 415 hours.

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Results are as follows:

- 1.0 Samples softened
- 2.0 Samples showed large volume and weight increase. Adsorption of the CHP by the elastomer noted.
- 3.0 Bubbles and cracks formed at samples surfaces.
- 4.0 The higher the peroxide content in the test solution, the more marked the consequences were.

Based on these results, Viton A elastomer is not recommended as a gasketing material in the CHP service.

Eventhough teflon has the proper chemical resistance to cumene hidroperoxide, it was discharged because its "Cold Flow" property and the unit had requested a gasket with good resiliency.

Considering that Neoprene and Buna N have good compression set, tear resistance and heat resistance properties and are elastic to provide good sealing, my feeling is that with a teflon coating a proper gasket would result.

Based on these observations, teflon envelope Neoprene or teflon envelope Buna N are recommended as gasket materials for the Phenol-Acetone oxidizers relief manheads.

If any doubt or additional information concerning this letter is needed, feel free to contact me.

Very truly yours,

Ricardo J. Prieto

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