UC 149-2

MATERIALS ENGINEERING CENTRAL FILE

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UNION CARBIDE

INTERNAL CORRESPONDENCE

UNION CARBIDE CARIBE INC. • PONCE, PUERTO RICO

June 17, 1977

TO: Mr. E. Báez

CC: Mr. L. N. García
Mr. O. Guntz
Mr. C. R. Kline
Mr. R. A. Méndez
Mr. J. R. Mora
Mr. R. Ocejo
Mr. H. Shing
Mr. J. Velazquez

MOC

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 inmersed in 6% CHP and 24% CHP at a temperature range of 85°C to 93°C for 415 hours.

PLAINTIFF'S EXHIBIT
UC-2409

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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

Ricardo J. Prieto
Materials Engineering Group

ggr

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