PLAINTIFF'S EXHIBIT

UC-2437

UNION CARBIDE CORPORATION
ENGINEERING, MANUFACTURING, AND TECHNOLOGY SERVICES DIVISION
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M E M O R A N D U M

BUSINESS CONFIDENTIAL

February 25, 1987

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TO: Mr. E. K. Harris- Bldg. 2000

COPY: MOC

FROM: A. J. Montero

SUBJECT: Materials of Construction Recommendations for IBT (Isobutyraldehyde Trimer) Production

You are preparing a technology package to make UCAR Filmer IBT (isobutyraldehyde trimer). This product will be made by Haltermann, a custom processor in Houston, Texas. You asked me to provide you with a statement for the technology package regarding the materials of construction for the IBT process.

The materials of construction recommended for producing UCAR Filmer IBT are:

1. Storage of IBAL (Isobutyraldehyde) - fresh and recycled IBAL should be stored in 304 SS, 316 SS, or aluminum tanks. Steel tanks can be used but they must be lined with a compatible lining such as Plasite 3066 or Plasite 9500.

2. Reaction - carbon steel is the recommended material of construction for this part of the process. Types 304 SS and 316 SS are also acceptable materials of construction.

3. IBAL Recovery - carbon steel is also the material recommended for the recovery column and any equipment and piping associated with this column. Again, 304 SS and 316 SS are also acceptable materials.

4. Flash System - carbon steel is also the recommended material for all the equipment and piping in this system. Types 304 SS and 316 SS are also acceptable materials.

5. Refining System - carbon steel is the recommended material for this system. Type 304 SS and 316 SS are also acceptable materials.

6. Storage of IBT - carbon steel, 304 SS or 316 SS, or aluminum are can be used to store IBT.



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To: G B Elder

George-

As all aware of our efforts to stop using compressed asbestos gaskets?

Regards
Clyde

7. Condensers and Coolers - carbon heat exchangers which use coolin compatible with the process stre compatible with the cooling wate

8. Gaskets - compressed asbestos, Te acceptable for handling the raw m

9. O-ring and Elastomers - the only process streams is EPR (also known temperature is 45°C (113°F). Abo

The above recommendations were based on

1. To prevent iron contamination of the fresh and carbon steel is not recommended. I amount of water and organic acid pr

2. Although there may be some isobutyr acid will not increase the corrosion neutralized in the reaction system w catalyst.

3. Compressed asbestos gaskets are norm service when the temperature is above aldehyde in the stream is greater tha will not be made all the time, compre for streams containing more that 10% 100°C. Field experience shows that it aldehyde to attack the binder in compr asbestos with an EPR binder will give asbestos with other binders.

3/18/87

Clyde Nicely

Al is aware of the program. This was being done by an outside company (this equipment), so he just assumed they would use asbestos.

We'll get out publicity - maybe the minutes of our meeting - to tell our crew to push Grafoil etc now and discourage asbestos.

George

If you have any questions or comments concern ... above recommendations, please feel free to call.

Al Montero

AJM/ds
1919H

Index: B, 26, 28, 30, 32, 67, 71, 72, 81, 112, 113, 119, 120, 122, 131, 132, 138, 166, 187, 212, 273, 336

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7. Condensers and Coolers - carbon steel tubes may not be acceptable for heat exchangers which use cooling water. As stated, carbon steel is compatible with the process streams. Whether carbon steel is or is not compatible with the cooling water has to be determined by Haltermann.

8. Gaskets - compressed asbestos, Teflon, and grafoil gaskets are acceptable for handling the raw material and the process streams.

9. O-ring and Elastomers - the only elastomer recommended for handling the process streams is EPR (also known as EPT and EPDM). The maximum temperature is 45°C (113°F). Above this temperature, Teflon is required.

The above recommendations were based on the following:

1. To prevent iron contamination of the fresh and recycled IBAL, bare carbon steel is not recommended. Iron contamination is affected by the amount of water and organic acid present in the aldehyde.

2. Although there may be some isobutyric acid in the IBAL, the isobutyric acid will not increase the corrosion rate of steel because it will be neutralized in the reaction system with the sodium hydroxide used as a catalyst.

3. Compressed asbestos gaskets are normally not recommended for aldehyde service when the temperature is above 100°C and the concentration of the aldehyde in the stream is greater than about 10%. However, since IBT will not be made all the time, compressed asbestos should be acceptable for streams containing more that 10% aldehyde and at temperatures above 100°C. Field experience shows that it takes several years for the aldehyde to attack the binder in compressed asbestos. Compressed asbestos with an EPR binder will give better service than compressed asbestos with other binders.

If you have any questions or comments concerning the above recommendations, please feel free to call.

Al Montero

AJM/ds
1919H

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