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INTERNAL CORRESPONDENCE

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CHEMICALS AND PLASTICS

P. O. BOX 8361, SOUTH CHARLESTON, WEST VIRGINIA 25303

(Name) Mr. J. M. Gaston

Date June 8, 1970

Division

Location

Originating Dept.

Copy to Mr. G. A. Burgan
Mr. D. M. Curtis
Mr. W. J. Erdman
Mr. J. H. Howell
Mr. P. H. Rohr
Mr. G. G. Taylor

Subject Gasket Selection
Process Vessels for TEMIK Project

Dear Mike:

As you will recall, after our meeting last Thursday regarding gasket selection for the subject items, there were several equipment items for which we had not made a definite selection. For each of these items however we had narrowed the possible gasket materials and/or styles down to two or more possibilities, and it was agreed that the final selection in these cases would be made as the result of further investigation by the Mechanical Equipment Design Group. We accordingly requested the assistance of Mr. R. B. MacDiarmid, the local Johns-Manville representative, in making the final selection. Phil Rohr, Dale Curtis and I met with Mr. MacDiarmid last Friday afternoon and the proposed final gaskets selected as a result of this meeting are noted in the attached tabulation.

Perhaps some comments to supplement the brief remarks covered in the tabulation are in order as follows:

Use of J-M CRYOL

We had selected CRYOL as one of the possible gasket materials for several of the items. This is a glass-filled TEFION sheet, the purpose of the glass fiber filler being to offer greater resistance to cold flow than pure TEFION. However, Mr. MacDiarmid pointed out that cold flow is still a problem with this material and accordingly he does not recommend its use when other suitable materials are available.

A secondary consideration with respect to this material is that the seating stress is approximately four times that of the JM-86A and JM-92, and hence its use would necessitate flange redesign in some cases. Due to this high seating stress, CRYOL can be used as an emergency gasket for temporarily replacing one of the metal types.

Mr. MacDiarmid points out that CRYOL is manufactured and packaged under "clean-room" like conditions that make the material suitable for use in oxygen service. Since it is doubtful that this degree of cleanliness is required for the TEMIK project, he suggests that JM IO-FIO rather than CRYOL would be suitable for emergency use. IO-FIO is the equivalent material that is suitable for average (with respect to cleanliness) service, but costs only approximately 1/2 to 1/3 that of CRYOL (IO-FIO costs approx. \$33 for a 24" x 24" sheet). IO-FIO "tape", like CRYOL, is available in long continuous lengths in widths up to 30 inches.

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JM-913 (Type CG Spiral-wound) vs JM-929

In some cases, we had reduced the gasket selection to a choice between these two styles. It developed that, in cases where the usual outside CG (compression-limiting gage) of carbon steel could be employed, the cost and delivery of the JM-913 and JM-929 would be approximately the same. In most of our cases either an inside CG would be required or the flanges would have to be redesigned to accommodate the outside CG. In those cases where the inside CG could not be carbon steel, the JM-913 would be more costly.

Since there is no cost or delivery time advantage of the style 913 over style 929, and since the inadvertent unwinding of a style 913 always exists (especially with TEFLON filler), the selection of the style 929 is unquestionably the prudent choice.

JM-92

This material has the same seating stress characteristics as compressed asbestos (JM-60, 61, 86-A). However due to the rather coarse mesh of the woven asbestos cloth matrix, Mr. MacDiarmid recommends that the gasket width should be at least 3/4 inches in order for the gasket to be consistently effective. Accordingly following this recommendation will require a review of some of the existing flange designs, but it is believed that the slight change in gasket width that may be required will have at worst only a minor effect on the flange designs.

Mr. MacDiarmid pointed out that the cost (\$138.30 for 40 inch x 40 inch sheet, no allowance for cut-outs) of their #92 material reflects the fact that costly manufacturing techniques are employed that will assure a dense, essentially solid sheet. He stated that, while several manufacturers made a similar material, he does not believe that any of these similar materials could be truly considered a JM-92 equivalent. (We have all seen the sample from Frank Schoen's office that indicates what he is talking about.) Therefore he was quite emphatic about the fact that his recommendation to use TEFLON impregnated, woven asbestos cloth was based on the use of the JM-92 material only. Accordingly in cases where JM-92 has been selected, we plan to indicate on the drawing that no substitutes are allowed.

If there are any questions regarding the recommendations as outlined in the attached, please contact either Phil or me. We are presently proceeding on this basis.

Very truly yours,

Clyde C. Neely
C. C. Neely

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