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Building 4601T
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Response to R&D Reactive Chemical's Review - May 7th, 1991

Project: M2/M4/Methanol PSA System for Chlorinated Methanes Plant

Project Rep: Mike Bourne

Project Scope: This is an environmental project which utilizes Pressure Swing Adsorbers for the removal and collection of methylene chloride, methanol and carbon tetrachloride from tank and loading operation vents. Specific tanks include T-100, T-101, T-808, T-804A/B, T-809 and T-251.

This response addresses the four primary concerns resulting from the Reactive Chemical Review conducted on May 7, 1991 with attendants being Gerald Wagener, Gerald Barrilleaux, Barry Young, Deana Johnson and Mike Bourne.

1. In regards to the first concern, heat of adsorption data is desired in order to calculate the temperature rise for the methanol system. In the event air is 'sucked in' from the vent pipe leading to the atmosphere the possibility for creating a flammable mixture does exist. The heat of adsorption is very much similar and should be comparable to the negative of the heat of vaporization for methanol. Therefore, based on my communications with the process engineering representative for this project and Tom Hall in Midland, the temperature rise in the bed which is adsorbing organic vapors is negligible for the relatively small flow rates (200cfm) and time cycles (10 minutes) used to swap the beds. Expectations look for a maximum of 10 degrees Celsius temperature change per given time cycle. This large Delta T is at the maximum thermal venting and pump in rates from the methanol, carbon tetrachloride, and methylene chloride tanks.
2. Flow transmitters AI(306) (FT-42026) and AI(326) (FT-41421) are to be placed on the Critical Instrument list and to be handled by operations accordingly. These transmitters are important in that they report vent action in regards to the possibility of 'sucking in' air from the atmosphere.
3. The ID of the activated carbon used in the beds will be incorporated into the Methanes plant IPT program for future reference to procedures relating to equipment/material handling specific to replacement.
4. The Methanes plant will also develop safe procedures for the removal and disposal of the activated carbon used on the 1770 PSA since this particular PSA system uses methanol as a feed product. This procedure should include, but not be limited to, the proper handling of combustible materials. This procedure will also be included into the IPT program.


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