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XF: PDA-MURIATIC ACID

TO: Distribution

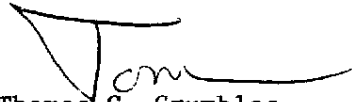
FROM: Tom Grumbles
DATE: September 20, 1984

Interoffice
Communication

SUBJ: COMMENTS TO FDA: MURIATIC ACID GRAS STATUS

VISTA

Enclosed is a copy of the comments sent to FDA regarding the proposed GRAS revocation for byproduct hydrochloric acid. FDA is under no statutory time frame for decision making on this issue and it's anybody's guess when a decision will be made. We will keep in touch with FDA to monitor progress.


Thomas G. Grumbles

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TGG004

Enclosure

Distribution: Tom Huffman, Jim Gibson, Kyle Resh, Carl Kerfoot,
Betsy Meyer, Wayne Hilgers, Bob Klein, Bill McClain,
W.J.B. Vogel, R.D. Gamblin, Mike Fortier

VVV 000016259

September 20, 1984

VISTA

Dockets Management Branch (HFA-305)
Food and Drug Administration
Room 4-62
5600 Fishers Lane
Rockville, MD 20857

Dear Sirs:

Vista Chemical Company (formerly Conoco Chemicals Company) is a major producer of byproduct hydrochloric acid from the NALKYLENE® Detergent Alkylate process at its plant in Baltimore, Maryland. Vista appreciates the opportunity to comment on the FDA proposal to revoke the GRAS status of byproduct hydrochloric acid, which appeared in the Thursday, April 26, 1984 Federal Register.

The FDA stated that the reason for this action is concern for undesirable contaminants in byproduct hydrochloric acid. The potential for specific organic contaminants to be contained in byproduct acid is highly variable, depending on the process involved and the post treatment of the acid after production. To categorically revoke GRAS status for all byproduct hydrochloric acid regardless of general or specific contaminants levels in the final product, is an arbitrary and unreasonable approach to address the concern of acid contamination. The contaminant levels in Vista Chemical's acid, in particular, do not support the need for a categorical ban of byproduct acid. It would seem more appropriate and less arbitrary to develop performance standards based on process design or specific contaminant levels in finished product.

The Agency stated that to evaluate a specific type of byproduct hydrochloric acid information was needed regarding the manufacturing process and contaminant levels. The following is offered in order to supply that information on Vista Chemical's process.

VISTA PROCESS DESCRIPTION

Vista's NALKYLENE® alkylate process is a proprietary process which reacts normal paraffins with chlorine to produce chloro-paraffin and then alkylates benzene with the chloroparaffin in a Friedel-Crafts reaction catalyzed with aluminum chloride. Both the chlorination and alkylation reaction liberate HCl gas which is absorbed in water to produce hydrochloric acid. The hydrochloric acid is then subjected to multiple purification steps before being sold. A more complete description of the hydrochloric acid

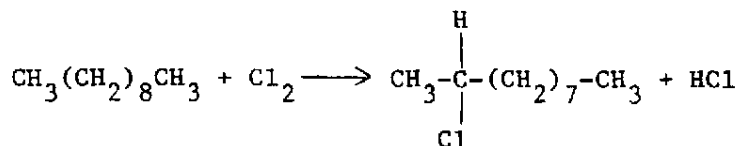
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production and purification process at the Vista plant is as follows:

Chlorination Step

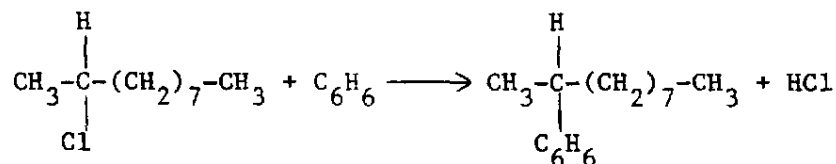
The major feedstocks to the chlorination section of the Vista NALKYLENE® process are normal paraffins in the decane to dodecane range and chlorine. Chlorine is fed into a chlorination reactor where it reacts with liquid paraffin to form chloroparaffin. The chlorination step liberates gaseous HCl by the following reaction:



Off-gas from the chlorination reactor is sent through a chlorine absorber where normal paraffin is used to react with any chlorine residual in the off gas. Chlorine free HCl off-gas flows from the chlorine absorber to the HCl purification/absorption section of the process.

Alkylation Step

The chloroparaffin from the chlorination section of the Vista NALKYLENE® alkylate process flows to the alkylation section and is reacted with benzene and follows the typical Friedel-Crafts reaction where anhydrous aluminum chloride acts as the catalyst. The alkylation section also liberates HCl gas by the following reaction:



The HCl gas from the alkylation reaction is separated from the crude alkylation reaction liquid under a slight vacuum in order to remove as much HCl as possible. The HCl off-gas is compressed and fed to the HCl purification/absorption section of the process.

HCl Purification/Absorption

Since the alkylation reaction is carried out in the presence of excess benzene the off-gas from the alkylation section contains benzene as well as HCl. There is also a limited quantity of benzene in the chlorination section off-gas. During the initial step of the HCl purification/absorption process the benzene concentration in the HCl off-gas streams is greatly reduced by contacting the combined chlorination/alkylation off-gas streams with chloroparaffin in an absorption tower. The chloroparaffin

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absorbs benzene. The HCl gas is then sent to a second absorption process where fresh water is used to absorb the HCl gas to form hydrochloric acid. The chloroparaffin stream is sent to the alkylation reaction section.

Fresh water is used in a two stage falling film absorption process to convert the HCl gas into hydrochloric acid. Final scrubbers remove any residual HCl from the inert gases which were present in the off-gas HCl prior to their venting to the atmosphere. The crude hydrochloric acid product is sent to the acid purification section.

Hydrochloric Acid Purification

The crude hydrochloric acid from the acid absorption process contains about 1000 ppm of organic contaminants, therefore, additional purification is required to produce a final hydrochloric acid product. Purification is accomplished in two steps by first contacting the hydrochloric acid with pure paraffin feedstock in a two stage contact/separation step and then final filtration with activated carbon.

A pure paraffin stream is contacted with the hydrochloric acid and then separated from the acid in a coalescing filter/separation vessel. Two vessels are used in series to get the optimum contact and separation. The pure paraffin stream absorbs benzene and other organic contaminants from the hydrochloric acid. It is however, almost completely insoluble in acid itself. Therefore, the total organic content of the hydrochloric acid is reduced to about 10 ppm after this step. The final carbon filtration step reduces the total organic concentration to less than 0.1 ppm (by hexane extraction analysis) and the benzene concentration to less than 0.05 ppm (by photo ionization detector chromatograph).

To summarize the byproduct hydrochloric acid produced by the process described above will contain less than 0.1 ppm of total extractable organics and less than 0.05 ppm benzene.

The Agency also requested data on the food catagories to which the acid is added, and organic contaminants remaining in the food. Much of this information is not available to Vista as a producer. This data would best be obtained from the users of hydrochloric acid.

In addition to the above, we offer the following comments with respect to the potential economic impact of this FDA proposal. Byproduct hydrochloric acid displaced from the market place as a result of this proposal would to some extent become excess product with no commercial value. In Vista's case, hydrochloric acid not marketed would be neutralized at considerable expense. Some producers may not have neutralization facilities and thus implementation of the FDA proposal could impact on their primary commercial operation. While impossible to estimate, there is no

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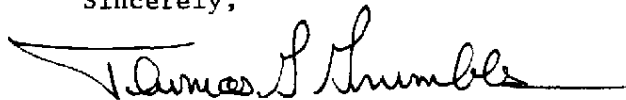
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question that prices for byproduct hydrochloric acid would be severely eroded as producers vie for business in a reduced market. It is also reasonable to expect that consumers of intentionally made hydrochloric acid will see higher prices either due to raw material costs and increased transportation charges and/or actual regional shortages.

Please note also that not only is neutralization of hydrochloric acid quite costly, but that directionally it impacts negatively on both air and water quality and potential employee exposure to HCL vapors.

Vista Chemical would be pleased to assist the FDA in any way to answer questions on the above comments or provide further information if needed.

Sincerely,

A handwritten signature in dark ink, appearing to read "Thomas G. Grumbles", with a long horizontal line extending to the right.

Thomas G. Grumbles, C.I.H.
Director, Industrial Hygiene

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