

To H.E. PAWSON R.J. TUCKER
From C.Q. OLESEN
Subject ARSENIC SUPPRESSION

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Ref. _____

ABSTRACT - to use a constant amount of FeCl_3 with varying amounts of NH_4Cl on combined samples of thickeners #6, #11, #13 to evaluate the use of NH_4Cl as an arsenic suppressant and a substitute for NH_4OH .

PROCEDURE - Samples were taken from thickeners #6, #11, #13 and combined for testing. The tested sample volumes of the combined thickeners was 2500ml. with 3 grams of FeCl_3 added. These samples were agitated and then varying amounts of NH_4Cl were added to the samples and agitated again. After this final agitation the samples were analyzed for pH, Cu, Fe and As.

DATA	pH	ppm Cu	ppm Fe	ppm As
#6 thickener	6.2	ND	25	25
#11 thickener	3.5	.28	126	107
#13 thickener	6.4	ND	16	520
Combination	6.1	ND	35	119
Combination (theo.)	?	.1	52	127
Combination + FeCl_3	5.1	1.38	29	27

NB. - Combination ratio's #6 = 70/125, #11 = 35/125, #13 = 20/125
- below all samples 2500ml. with 3 grams FeCl_3 (or 248 ppm Fe)

AMOUNT NH_4Cl (g)	pH	ppm Cu	ppm Fe	ppm As
5	5.3	1.38	17.2	22.4
7	5.2	1.92	26.4	21.0
10	5.3	1.42	15.6	23.0
15	5.3	1.95	15.6	21.5
20	5.2	2.40	25.6	20.2

CONCLUSIONS:

- comparing the combination to the theoretical combination a decrease in iron and arsenic is noted. Comparing this to previous tests (Dec 22/75 and Sept 5/75) a reverse was noted in the arsenic level, to an increase of approximately 50ppm As.

- comparing the theoretical combination to the combination with FeCl_3 added, there shows a considerable drop in the iron and arsenic levels. This same type of decrease was also noted on a previous report (page 5, Feb 16/76). Also there shows leaching of copper from the solids after the addition of FeCl_3 .

- As for the NH_4Cl as an arsenic suppressant, it is not functional but this test shows us that the suppression of arsenic is pH dependant.