

Benzene Remediation In Tank Decontamination

Given to a Verde distributor's service representative from a major petrochemical facility production engineer (Original on file in office)

Re: Decontamination of Benzene Tank for Maintenance

T425-I is an 8,000 barrel tank in benzene service. The tank maintained its normal nitrogen blanket during the decontamination operation. The tank came up for its normal inspection, and was stripped down to the point where our transfer pumps lost suction. The tank was then filled to a 1-foot level equaling 10,000 gallons. At this point the micro-blaze [Micro-Blaze[®] Emergency Liquid Spill Control] was added. To facilitate the bugs' effectiveness, a supply of N₂ was percolated into the liquid through a flange fitting. Care was taken to not allow tank internal pressure to exceed the MAWP. Samples were drawn after adding 1.25 barrels (0.63% Micro-Blaze[®] solution) to contaminated volume was added, and to get the initial benzene ppm.

Date	Time	ppm Benzene
07-06-99	1100	1017
07-06-99	1400	890
07-06-99	1700	888
07-07-99	0700	440
07-07-99	1100	640

At this point, more nitrogen pressure was supplied, due to the belief that there was residue on the tank floor that was slowly releasing more benzene, or that the benzene was floating on top of the water causing less available surface area for the bugs to attack. The benzene level did rise. The rest of the second barrel was added (equaling a total of 1% Micro-Blaze[®] volume). The following samples were taken:

Date	Time	ppm Benzene
07-07-99	1400	1170
07-07-99	1730	895
07-08-99	0700	12
07-08-99	1100	4

At this point, an air sample was taken, and there was no trace of benzene in the vapor space and the tank could be opened, vented to atmosphere for safety and inspected visually. All looked clean. Our Environmental Unit accepts benzene in concentrations not exceeding 50 ppm, so the tank contents were well within their criteria. Also, personnel exposure was met, due to the only benzene existing was in solution, and not in vapors, 0.5 pm being the exposure limit in DOT regulations.

All in all, the time frame of two days, and purchasing 3 barrels of micro-blaze [Micro-Blaze[®] Emergency Liquid Spill Control] for the tank decontamination was seen by all to be satisfactory. *It was my intent to observe the bugs' ability given a low oxygen environment and limited agitation afforded to us due to tank design, and they worked great.* We will use micro-blaze again for our tank decontamination projects.