**To:** Newhart, Gary[Newhart.Gary@epa.gov]; Singhvi, Raj[Singhvi.Raj@epa.gov]
**From:** Campagna, Philip
**Sent:** Sun 1/12/2014 10:44:28 PM
**Subject:** FW: Eastman Crude MCHM - 4-methylcyclohexanemethanol

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From: binetti, victoria
Sent: Sunday, January 12, 2014 4:30 PM
To: Wisniewski, Patti-Kay; Kelly, Jack (R3 Phila.); Caporale, Cynthia; Warner, Sue; Campagna, Philip
Cc: Werner, Lora; Casillas, Laura; Matlock, Dennis; Markiewicz, Karl; Linden, melissa; Larry Cseh; Mickunas, Dave
Subject: RE: Eastman Crude MCHM - 4-methylcyclohexanemethanol

I spoke with Ex. 6 - Personal Privacy from American Water. All the labs that are doing analyses for this event (and there are many, including Civil Support and others) are using the same method. If I understand this (maybe not), the DuPont method is the same as the Eastman method, but with the addition of a standard for MCHM (developed from the product at Freedom Industries), for better quantification. I guess the key is that everyone is using the same method. Cindy, I mentioned to Walt Ivey (WV DHHR, Bureau for Public Health) that you would be trying to get the method from their lab, (He said he'd been intending to get it to us, it's just that they've been very pressed.)--Vicky

-----Original Message-----
From: Wisniewski, Patti-Kay
Sent: Sunday, January 12, 2014 12:06 PM
To: Kelly, Jack (R3 Phila.); Caporale, Cynthia; Warner, Sue; Campagna, Philip; binetti, victoria
Cc: Werner, Lora; Casillas, Laura; Matlock, Dennis; Markiewicz, Karl; Linden, melissa; Larry Cseh; Mickunas, Dave
Subject: RE: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Jack,
How about if WPD determines method in use by WVAW first. They have not asked for EPA support specifically. Sounds as thought Civil Support is using the DuPont method and not the Eastman method, but who knows.

Vicky stated she would contact American, so perhaps she can find an answer first.

Patti Kay

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From: Kelly, Jack (R3 Phila.)
Sent: Sunday, January 12, 2014 11:59 AM
To: Caporale, Cynthia; Warner, Sue; Campagna, Philip; Wisniewski, Patti-Kay; binetti, victoria
Cc: Werner, Lora; Casillas, Laura; Matlock, Dennis; Markiewicz, Karl; Linden, melissa; Larry Cseh; Mickunas, Dave
Subject: Fw: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Karl heard back from Dupont. This looks promising. Maybe we should try to get him on a call with the American Water guy(s).

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From: Markiewicz, Karl
Sent: Sunday, January 12, 2014 10:35:43 AM
To: Kelly, Jack (R3 Phila.)
Subject: Fw: Eastman Crude MCHM - 4-methylcyclohexanemethanol

FYI

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From: Markiewicz, Karl
Sent: Sunday, January 12, 2014 10:02:49 AM
To: Mickunas, Dave
Cc: lkw9@cdc.gov; Ex. 4 - CBI
Subject: Fw: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Hello Dave,

Here's the latest email from Ex. 4 - CBI I've copied him on the email so you 2 can start communications.

Sincerely,

Karl

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F Ex. 4 - CBI
Sent: Sunday, January 12, 2014 9:44:42 AM
To: Markiewicz, Karl
Subject: RE: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Hi Karl,

I haven't had time to do an official MDL study, but component peaks have about a 2:1 s/n at the 0.01 ppm level, and matrix spikes and duplicates all look real good. To give ourselves a little leeway however, I have set our reporting limit as 0.1 ppm.

Levels in the feed to the water company plant are down at that level. The water exiting the plant is still between 0.5 and 1 ppm. It's hard to explain to some folks how activated carbon equilibria works. We're getting there.

Ex. 4 - CBI

From: Markiewicz, Karl [mailto:Markiewicz.Karl@epa.gov]
Sent: Sunday, January 12, 2014 7:08 AM
Ex. 4 - CBI
Cc: lkw9@cdc.gov
Subject: Re: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Thabks Michael,

Not problem - I know how hectic these responses are. I've seen emails indicating that the DL for MCHM is 10 ppb.

You guys are doing a great job and we appreciate all the support and effort.

Sincerely,

Karl

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Ex. 4 - CBI

Sent: Sunday, January 12, 2014 3:31:01 AM
To: Markiewicz, Karl
Cc: lkw9@cdc.gov<mailto:lkw9@cdc.gov>
Subject: RE: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Hello Karl,

I started this reply once before and got pulled away. At this point I have had little time for anything other than monitoring of the primary component 4-methylcyclohexanemethanol. Besides setting up additional GC's in my lab, preparing standards for contract lab evaluation, preparing odor profile standards for multiple groups, and trying to keep up with the ever increasing sample load, I have also been assisting three National Guard Mobile units in setting up the analysis on their equipment (with limited success).

Some air monitoring samples on activated charcoal would have been nice to look at. Reports coming to me as my lab techs rotate in and out, are that recent rains have almost completely eliminated the odor downtown. A lost opportunity to study some dispersion patterns???

Ex. 4 - CBI another chemist at the site) and I have had much the same suspicion as to the various odors.

Maybe once the dust settles I can go back and rehash the data.

Ex. 4 - CBI

From: Markiewicz, Karl [mailto:Markiewicz.Karl@epa.gov]
Sent: Friday, January 10, 2014 2:42 PM
To: Ex. 4 - CBI
Cc: lkw9@cdc.gov<mailto:lkw9@cdc.gov>
Subject: Eastman Crude MCHM - 4-methylcyclohexanemethanol

Hello Ex. 4 - CBI

I'm a toxicologist with CDC/ATSDR and involved with the WV spill response. I was given your email from a member of the response team within EPA.

I understand that you've developed the analytical standard and methods for 4-methylcyclohexanemethanol and maybe for all the components of the mixture. Can you provide detection limits for 4-methylcyclohexanemethanol and others if available?

We believe the licorice odor is related to the 4-(MethoxyMethyl) cyclohexaneMethanol( 98955-27-2) in the mixture. Its my understanding that as time has progressed the licorice odor has diminished and a sweet (alcohol?) odor is now detectable. Do you think the ether has dissipated and now the alcohols are

predominated the odor profile?

Eastman Crude MCHM

| Weight % | Component | CAS Registry No. |
|---|---|---|
| 68 . 89% | 4-methylcyclohexanemethanol | 34885-03-5 |
| 4 – 22% | 4-(methoxymethyl)cyclohexanemethanol | 98955-27-2 |
| 4 – IO% | water | 7732-18-5 |
| 5% | methyl4-methylcyclohexanecarboxylate | 51181-40-9 |
| 1% | dimethyl I,4-cyclohexanedicarboxylate | 94-60-0 |
| 1% | methanol | 67-56-1 |
| 1-2% | I,4-cyclohexanedimethanol | 105-08-8 |

Sincerely,

Karl

Karl V. Markiewicz PhD
Senior Toxicologist
DHHS/CDC/ATSDR
MailStop: 3HS00
1650 Arch Street
Philadelphia, PA 19103
215-814-3149 (office)
kvm4@cdc.gov<mailto:kvm4@cdc.gov>

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