To: Hedrick, Elizabeth[Hedrick.Elizabeth@epa.gov]; Burneson, Eric[Burneson.Eric@epa.gov]; Travers, David[Travers.David@epa.gov]
Cc: Wisniewski, Patti-Kay[Wisniewski.Patti-Kay@epa.gov]; Caporale, Cynthia[Caporale.Cynthia@epa.gov]; Hautman, Dan[Hautman.Dan@epa.gov]; Oshida, Phil[Oshida.Phil@epa.gov]
From: Arguto, William
Sent: Fri 1/24/2014 1:31:00 PM
Subject: RE: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom
DOWANOL DiPPH Glycol Ether.pdf
DOWANOL PPH Glycol Ether.pdf
Freedom MSDS .pdf
http___msdssearch.dow.com_PublishedLiteratureDOWCOM_dh_0119_0901b80380119ff3.pdf_filepath=productsafety_pdfs_noreg_233-00405.pdf

Elizabeth

Thanks for the information, extremely helpful. I have attached the MSDS information that we had. The online line information (Product Safety Assessment - the last attachment) has much more information.

Bill

-----Original Message-----
From: Hedrick, Elizabeth
Sent: Thursday, January 23, 2014 10:33 PM
To: Burneson, Eric; Travers, David; Arguto, William
Cc: Wisniewski, Patti-Kay; Caporale, Cynthia; Hautman, Dan; Oshida, Phil
Subject: RE: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

Eric,

I am a chemist is WSD. I have not seen any of the MSDSs supplied by Freedom but I have looked at the Eastman and Dow MSDSs online for Crude MCHM and Dowanol PPh, respectively. Can you share the official MSDSs from Freedom?

I am no expert but will answer your questions the best I can from my knowledge of chemistry or from what I have found online.

4-methylcyclohexanemethanol is chemically classified as an alcohol. Although surfactant would not be chemical nomenclature in a proper sense, it does describe the end use of Crude MCHM in coal washing. The mixture of MCHM with the other constituents in the Crude probably yield a stable solution with the surfactant properties desired. Surfactants are molecules with hydrophilic and hydrophobic ends. The cyclohexane would be hydrophobic and the methanol group would be hydrophilic. The MCHM is not a long chain polymer.

The MSDS I have seen online is for Dowanol PPh glycol ether (propylene glycol phenyl ether CAS 770-35-4). It explicitly states that it is very hydrophobic. That makes sense because of the short ether chain attached to the benzene ring. I have read that it was used as an "extender" to the Crude MCHM or was used to "reduce viscosity" of Crude MCHM.

I do not know what "stripped PPh" is so can provide nothing but information I have found online. Dr. Richard Dennison of the EDF has posted interesting information, though, and references a contact at Dow for some of his information.
http://blogs.edf.org/health/2014/01/22/another-new-wrinkle-on-the-new-mystery-chemical-in-west-virginia-spill/ He writes that "stripped" means "further distilled" but that Dow reports that they do not sell a stripped PPh and that Freedom may have mixed two Dow products and called it stripped?? The second chemical is similar to PPh but is a dipropylene glycol phenyl ether, basically a longer ether chain attached

to a benzene ring. I think it would be more hydrophilic than PPh.

That's about the depth of my knowledge at this time.

Elizabeth

Water Security Division
Office of Ground Water and Drinking Water U.S. Environmental Protection Agency
26 West Martin Luther King Drive
MS 140
Cincinnati, Ohio 45268
Ph (513) 569-7296
Fax (513) 569-7191

-----Original Message-----
From: Burneson, Eric
Sent: Thursday, January 23, 2014 5:29 PM
To: Travers, David; Arguto, William
Cc: Wisniewski, Patti-Kay; Caporale, Cynthia; Hedrick, Elizabeth; Hautman, Dan; Oshida, Phil
Subject: RE: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

Bill: I don t have any more information about the physical/chemical properties of MCHM or PPH beyond what was in the MSDS. I am copying Dan Hautman from our TSC Cincinnati lab to see if he has any information at his disposal that could be helpful. Dan is in the office tomorrow.
-----Original Message-----
From: Travers, David
Sent: Thursday, January 23, 2014 5:17 PM
To: Arguto, William; Burneson, Eric
Cc: Wisniewski, Patti-Kay; Caporale, Cynthia; Hedrick, Elizabeth
Subject: Re: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

Bill, I am including Steve Allgeier and Elzabeth Hedrick with WSD on this email in case they can assist. If they or Eric's staff cannot respond fully, then WSD can provide contractor assistance/expertise to you to get an answer tomorrow. But I'll wait for Steve/Elizabeth and Eric to respond. D

From: Arguto, William
Sent: Thursday, January 23, 2014 4:46:23 PM
To: Burneson, Eric
Cc: Travers, David; Wisniewski, Patti-Kay; Caporale, Cynthia
Subject: RE: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

David / Eric

I just received a question From Sen Rockefellers office regarding PPH. They said that they had conflicting information as to whether PPH was Hydrophobic or Hydrophilic. The staffer said that they have seen conflicting information on the Chemical. I am going back to look at the CDC information to see if they describe the materials any differently. Is there someone, maybe Steve OST that could provide definitive chemistry on the components. Is there an issue with PPH stripped - vs the individual components

They also asked if crude MCHM is a surfactant? An Alcohol A long chain polymer? I have not started to research it yet but if you have anyone that can help with these questions it would help us in our response to the Staffers. I have CC'D or Fort Meade lab but haven't had the time to talk to Cindy yet

Thanks
Bill

-----Original Message-----
From: Burneson, Eric
Sent: Wednesday, January 22, 2014 11:33 AM
To: Arguto, William
Cc: Travers, David
Subject: FW: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom
Importance: High

Bill: Vicki asked us to loop you into future communication regarding the WV spill. Apologies if you have already received this informaton. I will keep you posted.

-----Original Message-----
From: Clark, Becki
Sent: Wednesday, January 22, 2014 7:55 AM
To: Vandenberg, John; Cogliano, Vincent; Burneson, Eric; Doyle, Elizabeth; Grevatt, Peter; Sayles, Gregory
Cc: Lopez-Carbo, Maria; Bissonette, Eric
Subject: Fw: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom
Importance: High

Here is what I sent you last night with the attachments this time.

From: Weis, Christopher (NIH/NIEHS) [E] <christopher.weis@nih.gov>
Sent: Tuesday, January 21, 2014 6:29:43 PM
To: Clark, Becki
Subject: FW: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

Becki,

I thought you should see this emerging information from the Elk River Spill. If you could share it with the EPA review team, I would appreciate it.

Thanks,

Chris

Christopher P. Weis, Ph.D., DABT
Toxicology Liaison/Senior Advisor
Office of the Director
National Institutes of Health
National Institute for Environmental Health Science
31 Center Street, Room B1C02
Bethesda, MD 20892-2256

PH: 301.496.3511

From: "Kapil, Vikas (CDC/ONDIEH/NCEH)" <vck3@cdc.gov<mailto:vck3@cdc.gov>>
Date: Tue, 21 Jan 2014 15:21:08 -0500
To: Christopher Weis <Christopher.Weis@NIH.gov<mailto:Christopher.Weis@NIH.gov>>

Subject: FW: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

MSDSs attached .as discussed Chris. Please give me a call if you have thoughts .note the LD50 and some comments on cancer info.

Thanks again,

Vik

From: Werner, Lora S. (CDC epa.gov)
Sent: Tuesday, January 21, 2014 11:10 AM
To: Helverson, Robert (CDC epa.gov); Markiewicz, Karl (EPA) (CDC epa.gov); Cseh, Larry (ATSDR/DTHHS/OD); Kapil, Vikas (CDC/ONDIEH/NCEH); Holler, James S. (Jim) (ATSDR/DTHHS/OD); Murray, Ed (ATSDR/DTHHS/OD); Wheeler, John (ATSDR/DTHHS/OD); Welsh, Clement (ATSDR/DTHHS/OD)
Subject: Fw: Additional chemical was in Tank 396 with the MCHM that was leaked (Freedom

Please see below from EPA R3.

Ed, can Larry and your group review the tox info on this additional chemical for our internal purposes as soon as possible?

We can discuss this at our 4 pm with Robin and determine how to discuss with the state. I am sure at least their environmental state folks are also aware of this now too, and we can expect the health folks to ask our opinion soon is my guess.

Lora

From: Linden, melissa
Sent: Tuesday, January 21, 2014 10:55:45 AM
To: Burns, Francis; Kelly, Jack (R3 Phila.); Werner, Lora
Subject: Additional chemical was in Tank 396 with the MCHM that was leaked

Good morning,

During the 10am meeting with Freedom Industries this morning we were told that there was a mixture in Tank 396, instead of just MCHM. The mixture was approximately 5.6% of the PPH which can be found in the attached MSDS sheet from published by Freedom Industries. The PPH is a combination of the two products from DOW which are also attached to this email. Approximately 300 gallons of the PPH with 6251 gallons of MCHM for the total release (including what is still in the soil and what made it to the river).

Thanks,

Melissa Linden

On-Scene Coordinator

Western Response Branch (3HS32)

Hazardous Site Cleanup Division

1060 Chapline St. Suite 401

Wheeling, WV 26003

Phone: 304-234-0251

From: Ex. 6 - Personal Privacy @TechLawInc.com>>
Sent: Tuesday, January 21, 2014 10:40 AM
To: sharma, raj; Linden, melissa
Subject: MSDS for PPH

Hello,

Attached, please find the three MSDS for the PPH.

Thanks,

Ex. 6 - Personal Privacy

Techlaw, Inc
2208 Warwood Ave
Wheeling, WV 26003

Ex. 6 - Personal Privacy

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