

**Focus Report**  
New Chemicals Program  
PMN Number: P-12-0072

Focus Date: 12/15/2011 12:00:00 AM Report Status: Completed  
Consolidated Set:  
Focus Chair: Jeff Bauer Contractor: Jessica Baxter

**I. Notice Information**

Submitter: CorsiTech CAS Number: [REDACTED]  
Chemical Name: [REDACTED]  
Use: [REDACTED] clay and shale stabilizer additive in well stimulation fluids and drilling fluids. [REDACTED]

[REDACTED] The PMN material has been tested and found to be less toxic than TMAC according to the 96 h LC50 data for Fathead minnows. Based on EPAÆs Ecotox database, the 96-h LC50 of TMAC is 462 mg/L. The 96-h LC50 of the PMN material on Fathead minnow is > 1000 mg/L with a NOEC of > 1000 mg/L.

Other Uses: [REDACTED]  
PV-Max: [REDACTED]  
Manufacture: [REDACTED] Import: [REDACTED]

**II. SAT Results**

(1) Health Rating: 1-2 Eco Rating: 1 Comments: ;  
Occupational: 1C Non-Occupational: Environmental: 2  
(1) PBT: 1 1 2 Comments:

**III. OTHER FACTORS**

**Categories:**

Health Chemical Category: Acrylamides; Diisocyanates Ecotox Category: cationic surfactants

**Related Cases/Regulatory History:**

Health related Cases: [REDACTED]  
Ecotox Related Cases: Same as [REDACTED]  
Regulatory History: [REDACTED] -FOCUS DROP  
[REDACTED] FOCUS DROP  
[REDACTED] -FOCUS DROP  
[REDACTED] -GRANTED

**MSDS/Label Information:**

MSDS: Yes Label: No  
General Equipment: chemical-resistant, impervious gloves / Safety eyewear should be used when there is a likelihood of exposure / Boots, Chemical apron or Nomex coveralls. / No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.  
Respirator: If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear an appropriate organic vapor respirator. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.  
Health Effects: May be irritating to skin, severely irritating to eyes (risk of serious damage to eyes). Over-exposure by inhalation may cause respiratory irritation. May be harmful if swallowed - may cause irritation to mouth, throat, and stomach.

TLV/PEL (PMN or raw material): - none established.

**Exposure Based Information:**

Exposure Based Review: Y  
Exposure Based Review (Eco): N  
Exposure Based Review (Non Occupational):

Exposure Based Review (Health): Y  
Exposure Based (Occupational): No  
Exposure Based (Environmental):

**IV. Summary of SAT Assessment**

**Fate:**

**Fate Summary:**

P-12-0072  
FATE: Estimations for the covalent ion pair MW [redacted]  
Solid with MP = 181-190 C (M)  
[redacted]  
S > 100 g/L at 25 C (M)  
VP < 1.0E-6 torr at 25 C (E)  
BP > 400 C (E)  
H < 1.00E-8 (E)  
log Koc = 1.00 (E)  
log Fish BCF = 0.50 (E)  
log Fish BAF = -0.03 (E)  
POTW removal (%) = 90 via biodeg; Fish log BAF = -0.03. OECD 301D(Closed Btl):  
48.4%/28d;  
Time for complete ultimate aerobic biodeg = da-wk  
Sorpton to soils/sediments = low  
PBT Potential: P1B1  
\*CEB FATE: Migration to ground water = negl

**Health:**

**Health Summary:**

Not absorbed from the skin, absorbed from the lung (pchem), absorbed from the GI tract (analog). Concern based on the analogue [redacted] are developmental toxicity [mouse gavage effects at 450 mg/kg/d (only dose tested), rat dermal NOEL = 500 mg/kg/d, and rat aerosol NOEL = 9.7 mg/kg/d]; kidney toxicity [LOEL = 5.7 mg/kg/d]; blood toxicity [rat diet 13-wk LOEL = 14 mg/kg/d and rat dermal LOEL = 32 mg/kg/d]; and liver toxicity [mouse diet 13-wk LOEL = 104 mg/kg/d and mouse dermal 13-wk LOEL = 80 mg/kg/d].

**Ecotox:**

**Ecotox Values:**

Fish 96-h LC50: >100(P)  
Daphnid 48-h LC50: >100(P)  
Green algal 96-h EC50: >100(P)  
Fish Chronic Value: >10(P)  
Daphnid ChV: >10(P)  
Algal ChV: >10(P)

**Ecotox values comments:**

Predictions are based on SARs for cationic surfactants; SAR chemical class = surfactant-cationic-quat [redacted]; MW [redacted] solid with mp unknown (P); S > 100 g/L at 20 C (P); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Ecotoxicity Study Review for

[redacted]  
(Trade Name: Klay Safe EF; [redacted])  
[redacted]

P-12-0072

Two ecotoxicity studies were submitted with the PMN P12-0072 by [redacted]

██████████ a 96-hour acute fish toxicity test and a 48-hour acute daphnid test. The studies were conducted in ██████████ and the test substance was described as a yellow amber liquid (purity unknown). The studies were conducted by ██████████. The studies were conducted under GLP conditions and followed OECD Guidelines 202 and 203 OECD, Section 2: Effects on Biotic Systems, Guideline for the Testing of Chemicals (2004).

1) The 96-hour acute toxicity test for fathead minnow (*Pimephales promelas*) on the PMN substance P-12-0072 was a static, definitive, limit test. Three replicates of 10 fish per replicate were exposed to controls or a test concentration of 1,000 mg of PMN substance/L. No measurements were taken for test substance analysis during the test. The test solutions were prepared by direct addition of the test material into the test water. DO ranged from 69 to 92%, pH ranged from 7.4 to 8.1, and test water temperature ranged from 21 - 23° C. No mortalities were observed in either the control or test concentration vessels. No information was provided on the test concentration of the PMN substance in solution or test substance purity.

96-hour LC50 > 1,000 mg/L

2) The 48-hour acute toxicity test for *Daphnia magna* on the PMN substance P-12-0072 was a static, definitive test. Three replicates of 10 daphnids per replicate were exposed to controls or nominal test concentrations of 125, 250, 500, 750 or 1,000 mg of the PMN substance/L. No measurements were taken for test substance analysis during the test. The test solutions were prepared by direct addition to the test water. DO ranged from 92 to 100%, pH ranged from 7.9 to 8.2, and test water temperature ranged from 21.8 to 23.4 ° C. No immobilization was observed in the controls or 250 mg/L treatment throughout the test. A 3 % immobilization was observed at 125 mg/L, and immobilization rates of 63 %, 77 % and 100 % were observed at the 500, 750 and 1000 mg/L treatments, respectively at 48 hours. At 48 hours, daphnia were observed swimming at the surface of the test media (250 and 500 mg/L), in a very weak state (750 mg/L) or dead (at 1000 mg/L). No information was provided on the test concentration of the material in solution or the test substance purity.

48-hour EC50 = 446.0 mg/L

Both tests are considered invalid. No information was provided on the test substance purity or concentration in test solution. Therefore, ECOSAR (v. 1.1) will be used to estimate toxicity for PMN P12-0072.

Chronic Concern Concentration = 1,000 mg/L

Acute Concern Concentration = 20,000 mg/L

Reviewer: T. Wright

QA/QC: S. Pollack

13th December, 2011

**Ecotox Factors:**

Assessment Factor: 10

Concern Concentration: 1000

## V. Summary of Exposures/Releases

Engineering Summary: P-12-0072

Exposures/Releases	Release	Release	Release
Scenario	[REDACTED]	Use: Stabilizer in Well Stimulation and Drilling Mud Formulations.	Use: Stabilizer in Well Stimulation and Drilling Mud Formulations.
Sites	1	50	50
Media	Deepwell Injection	Water or Incineration or Landfill	Water or Incineration or Landfill
Descriptor A	Conservative	High End	Conservative
Quantity A (kg/site/day)	2.3E+2	3.9E+0	1.3E+0
Frequency A (day/year)	200	350	350
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	[REDACTED]	[REDACTED]	[REDACTED]
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Exposure	Exposure	Exposure
Scenario	[REDACTED]	[REDACTED]	Use: Stabilizer in Well Stimulation and Drilling Mud Formulations.
Sites	1	1	50
Media	Dermal	Dermal	Dermal
Descriptor A	High End	High End	High End
Quantity A (kg/site/day)	8.8E+2	6.2E+2	8.8E+2
Frequency A (day/year)	200	200	250
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	[REDACTED]	[REDACTED]	[REDACTED]
Workers	2	1	400
Exposure Type	Liquid	Liquid	Liquid

## **V. Summary of Exposures/Releases**

Engineering Summary:

<b>Exposures/Releases</b>			
<b>Scenario</b>			
<b>Sites</b>			
<b>Media</b>			
Descriptor A			
Quantity A (kg/site/day)			
Frequency A (day/year)			
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From			
Workers			
Exposure Type			

## **VI. Focus Decision and Rationale**

### **Regulatory Actions**

Regulatory Decision: PMN Drop  
Type of Decision:

Decision Date: 12/15/2011

Rationale: P-12-0072 will be dropped from further review. Human health concerns were low-moderate for inhalation and dermal exposures. Potential risks to workers were mitigated by appropriate PPE and negligible inhalation. P-12-0072 will be dropped from further review. Human health concerns were low-moderate for inhalation and dermal exposures. Potential risks to workers were mitigated by appropriate PPE and negligible inhalation. Ecotoxicity concerns were low for cationic surfactants. Potential risks to the environment were low due to no exceedances of the COC during the release period. The following CEB exposure based criteria were met: Routine Dermal Cont: >250 workers & >100 days/yr. no EAB exposure based criteria was met. Due to negligible inhalation, no human health exposure based testing was desired.

COC: Chronic – 1,000 ppb, Acute – 20,000 ppb

#### Summary of exposures and releases

█  
1 site, 200 days/year, 3 workers  
Inhalation: negligible (VP < 0.001 torr)  
Dermal: 8.8E+2 mg/day (50% Liquid), 6.2E+2 mg/day (70% Liquid)

Releases via Deepwell Injection: 2.3E+2 kg/site-day over 200 days/yr

Fate Releases to Water (Removal 90%):  
SWC: 490.57 ppb  
DW: LADD: 3.50E-04 mg/kg/day; ADR: 2.24E-02 mg/kg/day  
FI: LADD: 4.74E-06 mg/kg/day; ADR: 2.66E-04 mg/kg/day

Fate Releases to Air:  
Stack Air: LADD: 4.94E-04 mg/kg/day

Use  
50 sites, 350 days/year, 400 workers  
Inhalation: negligible (VP < 0.001 torr)  
Dermal: 8.8E+2 mg/day (50% Liquid)

Releases to Water: 3.9E+0 kg/site-day over 350 days/yr  
Or Incineration or Landfill  
Releases to Water: 1.3E+0 kg/site-day over 350 days/yr  
Or Incineration or Landfill

P2 Rec Comments:

### **Testing:**

### **Final Recommended:**

Health:  
Eco:  
Fate:  
Other:



## SAT Report

PMN Number: P-12-0072

SAT Date: 12/9/2011

Print Date: 3/16/2015

### Related cases:

Health related cases: [REDACTED]

Ecotox related cases: Same as [REDACTED]. Analogs: [REDACTED]

### Concern levels:

Type of Concern:	<u>Health</u>	<u>Eco</u>	<u>Comments</u>
Level of Concern:	1-2	1	

<u>Persistence</u>	<u>Bioaccum</u>	<u>Toxicity</u>	<u>Comments</u>
1	1	2	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	
		Awaiting	
		Human Health	
		Entry	

### Exposure Based Review:

**Health:** Yes

**Ecotox:** No

### Routes of exposure:

**Health:** Drinking Water Inhalation

**Ecotox:** No releases to water

**Fate:** ;

### Keywords:

Keywords:

### Summary of Assessment:

#### Fate:

**Fate Summary:** P-12-0072

FATE: Estimations for the covalent ion pair MW [REDACTED]

Solid with MP = 181-190 C (M)

[REDACTED]  
S > 100 g/L at 25 C (M)



VP < 1.0E-6 torr at 25 C (E)

BP > 400 C (E)

H < 1.00E-8 (E)

log Koc = 1.00 (E)

log Fish BCF = 0.50 (E)

log Fish BAF = -0.03 (E)

POTW removal (%) = 90 via biodeg; Fish log BAF = -0.03. OECD 301D(Closed Btl):  
48.4%/28d;

Time for complete ultimate aerobic biodeg = da-wk

Sorption to soils/sediments = low

PBT Potential: P1B1

\*CEB FATE: Migration to ground water = negl

### Health:

**Health Summary:** Not absorbed from the skin, absorbed from the lung (pchem), absorbed from the GI tract (analog). Concern based on the analogue [REDACTED] are developmental toxicity [mouse gavage effects at 450 mg/kg/d (only dose tested), rat dermal NOEL = 500 mg/kg/d, and rat aerosol NOEL = 9.7 mg/kg/d]; kidney toxicity [LOEL = 5.7 mg/kg/d]; blood toxicity [rat diet 13-wk LOEL = 14 mg/kg/d and rat dermal LOEL = 32 mg/kg/d]; and liver toxicity [mouse diet 13-wk LOEL = 104 mg/kg/d and mouse dermal 13-wk LOEL = 80 mg/kg/d].

### Ecotox:

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	96-h	LC50	>100		
daphnid	48-h	LC50	>100		
green algal	96-h	EC50	>100		
fish	-	chronic value	>10		
daphnid	-	chronic value	>10		
algal	-	chronic value	>10		
Sewage Sludge	3-h	EC50	-		
Sewage Sludge	-	Chronic Value	-		

### Ecotox Values Comments:

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb)	1000	
SARs	cationic surfactants	

SAR Class	surfactant-cationic-quat- [REDACTED] -	
Ecotox Category	[REDACTED]	

**Ecotox Factors Comments:**

**SAT Chair:** L Keifer 564-8916