Ecotox Report for Case # P-22-0151 (Version 1)

General

[redacted]

Report Status: Finalized
Status Date: 08/29/2023
Chemistry Date: 08/04/2022
Hazard Date:
Hazard Chair:
Consolidated PMN: N
Consolidated Set:
Ecotox Related Cases: Analogues [redacted]
Health Related Cases:
Submitter: [redacted]
CAS Number: [redacted]
Chemical Name: [redacted]
Use: Intended use: [redacted] P2REC: CRSS Forward P2 Claim The PMN substances have lower environmental toxicity and similar or better biodegradation performance than most of the surfactants that are included in EPA's Safer Chemical Ingredient List (SCIL) Analogues (same use): [redacted]
Trade Name: Lac08072021, 2021021Lact25, 2021021Lact3
PV max(kg/yr): [redacted]
Ecotox Hazard Assessor: Kennedy, Amuel
Ecotox Risk Assessor: Turner, Nicholas

Fate Summary Statement

Fate Summary Statement: P-22-0151
FATE
Liquid with MP < 25 °C (E)

S = Dispersible (ICB)
VP < 1.0E-6 torr at 25 °C (E)
BP > 400 °C (E)
H < 1.00E-8 (E)
POTW removal (%) = 90 via biodeg
Time for complete ultimate aerobic biodeg = wk
Sorption to soils/sediments = low
PBT Potential: P1B1
FATE: Migration to ground water = negl
Bioconcentration factor to be put into E-FAST: N/A

Analogue data found (include identifier and database) [redacted]

Relevant Structure(s)
Water Parent
Landfill Parent
Air / Incineration Parent
Parent % incineration 99.9%

Environmental Fate Determination

PMN #: P-22-0151
Summary: EPA estimated that the new chemical substance could have limited persistence and low potential for bioaccumulation, such that repeated exposures are not expected to cause food-chain effects via accumulation in exposed organisms.

Fate: Environmental fate is the determination of which environmental compartment(s) a chemical moves to, the expected residence time in the environmental compartment(s) and removal and degradation processes. Environmental fate is an important factor in determining exposure and thus in determining whether a chemical may present an unreasonable risk. EPA estimated physical/chemical and fate properties of the new chemical substance using data for analogue(s) ([redacted]). In wastewater treatment, the new chemical substance is expected to be removed with an efficiency of 90% due to biodegradation. Removal of the new chemical substance by biodegradation is high. Sorption of the new chemical substance to sludge, soil, and sediment is expected to be low. Migration of the new chemical substance to groundwater is expected to be negligible due to biodegradation. Due to low estimated vapor pressure and Henry's law constant, the new chemical substance is expected to undergo negligible volatilization to air. Overall, these estimates indicate that the new chemical substance has low potential to volatilize to air or migrate to groundwater.

Persistence : Persistence is relevant to whether a new chemical substance is likely to present an unreasonable risk because chemicals that are not

degraded in the environment at rates that prevent substantial buildup in the environment, and thus increase potential for exposure, may present a risk if the substance presents a hazard to human health or the environment. EPA estimated degradation half-lives of the new chemical substance using data for analogue(s) ([redacted] EPA estimated that the new chemical substance's aerobic and anaerobic biodegradation half-lives are < 2 months. These estimates indicate that the new chemical substance may have limited persistence in aerobic environments (e.g., surface water) and anaerobic environments (e.g., sediment).

Bioaccumulation : Bioaccumulation is relevant to whether a new chemical substance is likely to present an unreasonable risk because substances that bioaccumulate in aquatic and/or terrestrial species pose the potential for elevated exposures to humans and other organisms via food chains. EPA estimated the potential for the new chemical substance to bioaccumulate using data for analogue(s) ([redacted] EPA estimated that the new chemical substance has low bioaccumulation potential based on expected metabolism of the new chemical substance. EPA estimated that the new chemical substance could have limited persistence and low potential for bioaccumulation, such that repeated exposures are not expected to cause food-chain effects via accumulation in exposed organisms.

Chemical Structure

Physical Chemical Information

Molecular Weight:	[redacted]		
Wt% < 500:		**Wt% < 1000:**	
Physical State - Neat:	Liquid (Est.)		
Melting Point:		**Melting Point (est):**	
MP (EPI):			
Vapor Pressure:		**Vapor Pressure (est):**	<0.000001
VP (EPI):			
Water Solubility:		**Water Solubility (est):**	Dispersible
Water Solubility (EPI):			
Henry's Law::			
Log Koc:		**Log Koc (EPI):**	
Log Kow:		**Log Kow (EPI):**	

Log Kow Comment:	

SAT Concern Level

Ecotox Rating (1):	2
Ecotox Rating Comment (1):	
Ecotox Rating (2):	
Ecotox Rating Comment (2):	
Ecotox Route of Exposure:	All releases to water

Ecotox Comments

Exposure Based Review (Eco):	
Ecotox Comments:	
Exposure Based Testing:	

PBT Ratings

Persistence	Bioaccumulation	Toxicity	Comments
1	1		

Eco-Toxicity Comment:

Fate Ratings

Removal in WWT/POTW (Overall):	90					
Condition	**Rating Values**	**Rating Description**				**Comment**
		1	**2**	**3**	**4**	
Fish BCF:						
Log Fish BCF:						

Removal in WWT/POTW (Overall):	90					
Condition	**Rating Values**	**Rating Description**				**Comment**
		1	**2**	**3**	**4**	
WWT/POTW Sorption:	1	Low	Moderate	Strong	V. Strong	
WWT/POTW Stripping:	4	Extensive	Moderate	Low	Negligible	
Biodegradation Removal:	2	Unknown	High	Moderate	Negligible	
Biodegradation Destruction:		Unknown	Complete	Partial	—	
Aerobic Biodeg Ult:	2	<= Days	Weeks	Months	> Months	
Aerobic Biodeg Prim:		<= Days	Weeks	Months	> Months	
Anaerobic Biodeg Ult:		<= Days	Weeks	Months	> Months	
Anaerobic Biodeg Prim:		<= Days	Weeks	Months	> Months	
Hydrolysis (t1/2 at pH 7,25C) A:		<= Minutes	Hours	Days	>= Months	
Hydrolysis (t1/2 at pH 7,25C) B:		<= Minutes	Hours	Days	>= Months	
Sorption to Soils/Sediments:	4	V. Strong	Strong	Moderate	Low	
Migration to Ground Water:	1	Negligible	Slow	Moderate	Rapid	
Photolysis A, Direct:		Negligible	Slow	Moderate	Rapid	
Photolysis B, Indirect:		Negligible	Slow	Moderate	Rapid	
Atmospheric Ox A, OH:		Negligible	Slow	Moderate	Rapid	
Atmospheric Ox B, O3:		Negligible	Slow	Moderate	Rapid	
Bio Comments:	A Fate Study Summary is available.					
Fate Comments:						

Ecotoxicity Values

Test organism	Test Type	Test Endpoint	Predicted	Experimental	Comments

Test organism	Test Type	Test Endpoint	Predicted	Experimental	Comments
Fish	96-h	LC50	27.5		Predictions are based on analogue test data ([redacted] .
Daphnid	48-h	LC50	>95.5		Predictions are based on analogue test data ([redacted] .
Green Algae	96-h	EC50	53.7		Predictions are based on analogue test data [redacted]
Fish	-	Chronic Value	5.5		Predictions are based on analogue test data with an ACR of 5 ([redacted])
Daphnid	-	Chronic Value	>10		Predictions are based on SARs for nonionic surfactants (special class within ECOSAR V2.0)
Green Algae	-	Chronic Value	15.5		Predictions are based on analogue test data ([redacted] .

Ecotox Value Comments: Predictions are based on analogue test data ([redacted]) and SARs for nonionic surfactants (special class within ECOSAR V2.0); MW [redacted] Log Kow = 3.9-5.8 (M, for left lactonic structures), 2.2-3.5 (M, for right linear structures); liquid (est.) with an unknown MP (P); S = Dispersible (P); effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <150 mg/L as CaCO3; and TOC <2.0 mg/L.

Ecotox Factors

Factors	Most Sensitive Endpoint	Assessment Factor	CoC	Comment
Acute Aquatic(ppb):	27500	5	5500	The acute COC is based on the fish LC50 toxicity value
Chronic Aquatic(ppb):	5500	10	550	The chronic COC is based on the fish ChV.

Factors	Values	Comments
SARs:	Nonionic Surfactants	
SAR Class:	Surfactant nonionic alkyl sugar	
TSCA NCC Category?	Nonionic Surfactants	

Recommended Testing:

Ecotox Haz Factors Comments: Environmental Hazard: Environmental hazard is relevant to whether a new chemical substance is likely to present unreasonable risk because the significance of the risk is dependent upon both the hazard (or toxicity) of the chemical substance and the extent of exposure to the substance. EPA estimated environmental hazard for this new chemical substance based on analogue test data and SAR predictions for Nonionic Polymers (special class within ECOSAR v.2.0). This substance falls within the TSCA New Chemicals Category of Aliphatic amines. Acute toxicity values estimated for fish, aquatic invertebrates, and algae are No effects at saturation (27.5) mg/L, >95.5 mg/L, and >53.7 mg/L, respectively. Chronic toxicity values estimated for fish, aquatic invertebrates, and algae are 5.5 mg/L, >10 mg/L, and 15.5 mg/L, respectively. These toxicity values indicate that the new chemical substance is expected to have moderate environmental hazard. Application of assessment factors of 5 and 10 to acute and chronic toxicity values, respectively, results in acute and chronic concentrations of concern of 5.5 mg/L (5,500 ppb) and 0.5 mg/L (550 ppb), respectively.

Ecotox Risk Factor Comments: Environmental Risk: Risks to the environment were evaluated by comparing estimated surface water concentrations (SWCs) with the acute and chronic concentrations of concern (COCs). When evaluating risks from chronic exposures, the number of the days of exceedance (SWC > chronic COC) is also considered in the risk assessment. Risks from acute exposures to the environment were not identified because the estimated 7Q10 SWC did not exceed the acute COC. Risks from chronic exposure to the environment were identified for this new chemical substance because the estimated 7Q10 SWC exceeded the chronic COC of 550 ppb for 20 or more days/year (SWC > COC for 46/250 days/yr, estimated SWC: 642 ppb) during use.

Comments/Telephone Log

Attachments	Update/Upload Time	Update/Upload By
P-15-0273 SAT Report.pdf	11/01/2022 12:36	Akennedy
P-13-0366 SAT Report.pdf	11/01/2022 12:36	Akennedy

Historic Documents

Attachments	Version Number	Updated/Uploaded Time	Updated/Uploaded By

Current Version Comments

Comment	Update/Upload Time	Update/Upload By