



Climax Mine
Highway 91 - Fremont Pass
Climax, CO 80429
Phone (719) 486-7718
Fax (719) 486-2251

April 1, 2021

Mr. Dustin Czapla
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman St. Room 215
Denver, Colorado 80203

RE: Climax Mine, Permit No. M-1977-493, Reagent Testing

Mr. Czapla,

Climax Metallurgy would like to run a short test on four new depressant reagents that would be used in the flotation process. The reagents are Exp 3-3, Exp 3-4, Exp 3-5, and Exp 3-6 from Chemstar Products Company (see attached SDS's). The proposed dosing rate for these reagents would be 0.066lb/ton of ore. The test will occur at lab scale in our met lab over the next month. All of the reagents amount to approx. 10 pounds and will be stored in containers in the met lab with proper containment. In the event we have any leftover reagents after testing has completed, we will dispose of the remaining chemical in accordance with waste regulations. We will update the EPP if we decide to make this change permanent.

Please let me know if you have any concerns. We would like to begin the test as soon as possible.

Sincerely,

Alex Ungers
Senior Environmental Scientist

attachments

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	Exp 3-3
Recommended use:	
Company details:	Chemstar Products Company
Address:	3232 East 40th Street, Minneapolis, MN, 55406-3203, US.
Telephone number:	(612) 722-0079
Emergency telephone number:	ChemTrek 800-424-9300
Date of preparation:	18 Mar 2021

SECTION 2: HAZARDS IDENTIFICATION

Hazard classifications:	Non-hazardous
Priority and secondary identifiers:	Non-hazardous
Risk and safety phrases:	Respiratory tract irritant Irritant (eyes)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization:	Modified polysaccharide		
Product components:	Product components		
Name	Cas	Proportion	
Modified Starch	proprietary	5-95%	
Water	NR	5-95%	

SECTION 4: FIRST AID MEASURES

Necessary first aid measures:	<p>Inhalation: Exposure via inhalation is not likely. If inhaled, remove to fresh air.</p> <p>Skin: Wash skin with soap and water.</p> <p>Eyes: Flush eyes with water for 15 minutes, seek medical attention.</p> <p>Ingestion: If swallowed, dilute by drinking large quantities of water, seek medical attention.</p> <p>Chronic exposure: No data</p> <p>Carcinogenicity: Not a likely carcinogen</p>
Workplace facilities:	No special facilities required.
Required instructions:	Observe good work practices to minimize skin contact. Wash hands and exposed skin after use. Do not eat or drink while using.
Notes for medical personnel:	Apply symptomatic therapy.

SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	
Fire hazard properties:	
Regulatory requirements:	

Extinguishing media and methods: Water, CO₂, dry powder or foam

Hazchem code:

Recommended protective clothing: When fighting a major fire, wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures: Sweep up and flush area with water.
Caution: Wet floors may be slippery when material is present. Avoid production of dust.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid practices which produce dust. Store away from heat, flame and spark source.
Regulatory requirements: N/A
Handling practices: N/A
Approved handlers: Not required
Conditions for safe storage: Store away from heat, flame and spark source
Store site requirements:
Packaging:

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Workplace exposure standards:
Application in the workplace: Prevent exposure by using engineering controls, personal protective equipment, and proper work practices. Avoid the creation of dust
Exposure standards outside the workplace: TEL and EELs are not set at this time
Engineering controls: Ventilation as needed to control dust
Personal protection: Dust respirator (NIOSH/MSHA TC-21C-132) as needed.
Eye protection
Protective gloves
References: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specify product data: Physical state: Solid
Solubility in water: complete
pH (4% sol): 6.0 - 8.0
Density (Lb./Cu. Ft.): 25 - 40
Appearance: Off white mini flakes
Required specifications: N/A
Further specifications: N/A
Specific advice:

SECTION 10: STABILITY AND REACTIVITY

Stability of the substance: Stable under normal conditions of use and storage

Conditions to avoid:	Dust-air mixtures may be explosive. The minimum ignition temperature reported through a 200 mesh sieve is 380 degrees C (716 degrees F). The minimum explosive concentration of a duct cloud is 0.04 oz / Cu Ft. Avoid open lights, flames, welding and spark producing sources. Damp or wet conditions will lead to spoilage
Material to avoid:	Strong oxidizing agents
Hazardous decomposition products:	Oxides of carbon
Hazardous polymerization:	Will not occur
Specific data:	Flammable Limits: LEL: N/A UEL: N/A

SECTION 11: TOXICOLOGICAL INFORMATION

Data and interpretation:	This material is not manufactured to contain any hazardous components. In eyes or respiratory systems it may cause irritation if heavy concentrations are encountered.
Summaries data:	Inhalation: May cause irritation to respiratory system Skin: None known Ingestion: Not edible
Format:	

SECTION 12: ENVIRONMENTAL INFORMATION

Potential environmental interactions:	
Data organisation:	
Environmental risk and safety phrases:	

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal information:	Dispose of in a manner which is in accordance with state and local regulations
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SECTION 14: TRANSPORT INFORMATION

Relevant information:	UN-Number: Not Regulated UN proper shipping name: Not Regulated Transport Hazard: Not Regulated See local and state regulations
Other requirements:	

SECTION 15: REGULATORY INFORMATION

Regulatory status:	See local and state regulations
HSNO and ACVM controls:	
List exposure limits:	

SECTION 16: OTHER INFORMATION

Additional information: none

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	Exp 3-4
Recommended use:	
Company details:	Chemstar Products Company
Address:	3232 East 40th Street, Minneapolis, MN, 55406-3203, US.
Telephone number:	(612) 722-0079
Emergency telephone number:	ChemTrek 800-424-9300
Date of preparation:	18 Mar 2021

SECTION 2: HAZARDS IDENTIFICATION

Hazard classifications:	Non-hazardous
Priority and secondary identifiers:	Non-hazardous
Risk and safety phrases:	Respiratory tract irritant Irritant (eyes)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization:	Modified polysaccharide		
Product components:	Product components		
Name	Cas	Proportion	
Modified Starch	proprietary	5-95%	
Water	NR	5-95%	

SECTION 4: FIRST AID MEASURES

Necessary first aid measures:	<p>Inhalation: Exposure via inhalation is not likely. If inhaled, remove to fresh air.</p> <p>Skin: Wash skin with soap and water.</p> <p>Eyes: Flush eyes with water for 15 minutes, seek medical attention.</p> <p>Ingestion: If swallowed, dilute by drinking large quantities of water, seek medical attention.</p> <p>Chronic exposure: No data</p> <p>Carcinogenicity: Not a likely carcinogen</p>
Workplace facilities:	No special facilities required.
Required instructions:	Observe good work practices to minimize skin contact. Wash hands and exposed skin after use. Do not eat or drink while using.
Notes for medical personnel:	Apply symptomatic therapy.

SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	
Fire hazard properties:	
Regulatory requirements:	

Extinguishing media and methods: Water, CO₂, dry powder or foam

Hazchem code:

Recommended protective clothing: When fighting a major fire, wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures: Sweep up and flush area with water.
Caution: Wet floors may be slippery when material is present. Avoid production of dust.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid practices which produce dust. Store away from heat, flame and spark source.
Regulatory requirements: N/A
Handling practices: N/A
Approved handlers: Not required
Conditions for safe storage: Store away from heat, flame and spark source
Store site requirements:
Packaging:

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Workplace exposure standards:
Application in the workplace: Prevent exposure by using engineering controls, personal protective equipment, and proper work practices. Avoid the creation of dust
Exposure standards outside the workplace: TEL and EELs are not set at this time
Engineering controls: Ventilation as needed to control dust
Personal protection: Dust respirator (NIOSH/MSHA TC-21C-132) as needed.
Eye protection
Protective gloves
References: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specify product data: Physical state: Solid
Solubility in water: complete
pH (4% sol): 6.0 - 8.0
Density (Lb./Cu. Ft.): 25 - 40
Appearance: Off white mini flakes
Required specifications: N/A
Further specifications: N/A
Specific advice:

SECTION 10: STABILITY AND REACTIVITY

Stability of the substance: Stable under normal conditions of use and storage

Conditions to avoid:	Dust-air mixtures may be explosive. The minimum ignition temperature reported through a 200 mesh sieve is 380 degrees C (716 degrees F). The minimum explosive concentration of a dust cloud is 0.04 oz / Cu Ft. Avoid open lights, flames, welding and spark producing sources. Damp or wet conditions will lead to spoilage
Material to avoid:	Strong oxidizing agents
Hazardous decomposition products:	Oxides of carbon
Hazardous polymerization:	Will not occur
Specific data:	Flammable Limits: LEL: N/A UEL: N/A

SECTION 11: TOXICOLOGICAL INFORMATION

Data and interpretation:	This material is not manufactured to contain any hazardous components. In eyes or respiratory systems it may cause irritation if heavy concentrations are encountered.
Summaries data:	Inhalation: May cause irritation to respiratory system Skin: None known Ingestion: Not edible
Format:	

SECTION 12: ENVIRONMENTAL INFORMATION

Potential environmental interactions:	
Data organisation:	
Environmental risk and safety phrases:	

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal information:	Dispose of in a manner which is in accordance with state and local regulations
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SECTION 14: TRANSPORT INFORMATION

Relevant information:	UN-Number: Not Regulated UN proper shipping name: Not Regulated Transport Hazard: Not Regulated See local and state regulations
Other requirements:	

SECTION 15: REGULATORY INFORMATION

Regulatory status:	See local and state regulations
HSNO and ACVM controls:	
List exposure limits:	

SECTION 16: OTHER INFORMATION

Additional information: none

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	Exp 3-5
Recommended use:	
Company details:	Chemstar Products Company
Address:	3232 East 40th Street, Minneapolis, MN, 55406-3203, US.
Telephone number:	(612) 722-0079
Emergency telephone number:	ChemTrek 800-424-9300
Date of preparation:	18 Mar 2021

SECTION 2: HAZARDS IDENTIFICATION

Hazard classifications:	Non-hazardous
Priority and secondary identifiers:	Non-hazardous
Risk and safety phrases:	Respiratory tract irritant Irritant (eyes)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization:	Modified polysaccharide		
Product components:	Product components		
Name	Cas	Proportion	
Modified Starch	proprietary	100%	
None	NR	<1%	

SECTION 4: FIRST AID MEASURES

Necessary first aid measures:	<p>Inhalation: Exposure via inhalation is not likely. If inhaled, remove to fresh air.</p> <p>Skin: Wash skin with soap and water.</p> <p>Eyes: Flush eyes with water for 15 minutes, seek medical attention.</p> <p>Ingestion: If swallowed, dilute by drinking large quantities of water, seek medical attention.</p> <p>Chronic exposure: No data</p> <p>Carcinogenicity: Not a likely carcinogen</p>
Workplace facilities:	No special facilities required.
Required instructions:	Observe good work practices to minimize skin contact. Wash hands and exposed skin after use. Do not eat or drink while using.
Notes for medical personnel:	Apply symptomatic therapy.

SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	
Fire hazard properties:	
Regulatory requirements:	

Extinguishing media and methods: Water, CO₂, dry powder or foam

Hazchem code:

Recommended protective clothing: When fighting a major fire, wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures: Sweep up and flush area with water.
Caution: Wet floors may be slippery when material is present. Avoid production of dust.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid practices which produce dust. Store away from heat, flame and spark source.
Regulatory requirements: N/A
Handling practices: N/A
Approved handlers: Not required
Conditions for safe storage: Store away from heat, flame and spark source
Store site requirements:
Packaging:

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Workplace exposure standards:
Application in the workplace: Prevent exposure by using engineering controls, personal protective equipment, and proper work practices. Avoid the creation of dust
Exposure standards outside the workplace: TEL and EELs are not set at this time
Engineering controls: Ventilation as needed to control dust
Personal protection: Dust respirator (NIOSH/MSHA TC-21C-132) as needed.
Eye protection
Protective gloves
References: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specify product data: Physical state: Solid
Solubility in water: complete
pH (4% sol): 6.0 - 8.0
Density (Lb./Cu. Ft.): 25 - 40
Appearance: Off white mini flakes
Required specifications: N/A
Further specifications: N/A
Specific advice:

SECTION 10: STABILITY AND REACTIVITY

Stability of the substance: Stable under normal conditions of use and storage

Conditions to avoid:	Dust-air mixtures may be explosive. The minimum ignition temperature reported through a 200 mesh sieve is 380 degrees C (716 degrees F). The minimum explosive concentration of a dust cloud is 0.04 oz / Cu Ft. Avoid open lights, flames, welding and spark producing sources. Damp or wet conditions will lead to spoilage
Material to avoid:	Strong oxidizing agents
Hazardous decomposition products:	Oxides of carbon
Hazardous polymerization:	Will not occur
Specific data:	Flammable Limits: LEL: N/A UEL: N/A

SECTION 11: TOXICOLOGICAL INFORMATION

Data and interpretation:	This material is not manufactured to contain any hazardous components. In eyes or respiratory systems it may cause irritation if heavy concentrations are encountered.
Summaries data:	Inhalation: May cause irritation to respiratory system Skin: None known Ingestion: Not edible
Format:	

SECTION 12: ENVIRONMENTAL INFORMATION

Potential environmental interactions:	
Data organisation:	
Environmental risk and safety phrases:	

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal information:	Dispose of in a manner which is in accordance with state and local regulations
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SECTION 14: TRANSPORT INFORMATION

Relevant information:	UN-Number: Not Regulated UN proper shipping name: Not Regulated Transport Hazard: Not Regulated See local and state regulations
Other requirements:	

SECTION 15: REGULATORY INFORMATION

Regulatory status:	See local and state regulations
HSNO and ACVM controls:	
List exposure limits:	

SECTION 16: OTHER INFORMATION

Additional information: none

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	Exp 3-6
Recommended use:	
Company details:	Chemstar Products Company
Address:	3232 East 40th Street, Minneapolis, MN, 55406-3203, US.
Telephone number:	(612) 722-0079
Emergency telephone number:	ChemTrek 800-424-9300
Date of preparation:	18 Mar 2021

SECTION 2: HAZARDS IDENTIFICATION

Hazard classifications:	Non-hazardous
Priority and secondary identifiers:	Non-hazardous
Risk and safety phrases:	Respiratory tract irritant Irritant (eyes)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization:	Modified polysaccharide		
Product components:	Product components		
Name	Cas	Proportion	
Modified Starch	proprietary	100%	
None	NR	<1%	

SECTION 4: FIRST AID MEASURES

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Workplace facilities:	No special facilities required.
Required instructions:	Observe good work practices to minimize skin contact. Wash hands and exposed skin after use. Do not eat or drink while using.
Notes for medical personnel:	Apply symptomatic therapy.

SECTION 5: FIRE FIGHTING MEASURES

Type of hazard:	
Fire hazard properties:	
Regulatory requirements:	

Extinguishing media and methods: Water, CO2, dry powder or foam

Hazchem code:

Recommended protective clothing: When fighting a major fire, wear full protective clothing including breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Emergency procedures: Sweep up and flush area with water.
Caution: Wet floors may be slippery when material is present. Avoid production of dust.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling: Avoid practices which produce dust. Store away from heat, flame and spark source.
Regulatory requirements: N/A
Handling practices: N/A
Approved handlers: Not required
Conditions for safe storage: Store away from heat, flame and spark source
Store site requirements:
Packaging:

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Workplace exposure standards:
Application in the workplace: Prevent exposure by using engineering controls, personal protective equipment, and proper work practices. Avoid the creation of dust
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Protective gloves
References: N/A

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Specify product data: Physical state: Solid
Solubility in water: complete
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Density (Lb./Cu. Ft.): 25 - 40
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Further specifications: N/A
Specific advice:

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Hazardous decomposition products:	Oxides of carbon
Hazardous polymerization:	Will not occur
Specific data:	Flammable Limits: LEL: N/A UEL: N/A

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Potential environmental interactions:	
Data organisation:	
Environmental risk and safety phrases:	

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal information:	Dispose of in a manner which is in accordance with state and local regulations
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SECTION 14: TRANSPORT INFORMATION

Relevant information:	UN-Number: Not Regulated UN proper shipping name: Not Regulated Transport Hazard: Not Regulated See local and state regulations
Other requirements:	

SECTION 15: REGULATORY INFORMATION

Regulatory status:	See local and state regulations
HSNO and ACVM controls:	
List exposure limits:	

SECTION 16: OTHER INFORMATION

Additional information: none