

Beshada, Eshetu (CC)

From: Kevin Poirier <kpoirier@scvconsultingltd.com>

Sent: June 29, 2022 6:50 AM

To: Beshada, Eshetu (CC) <Eshetu.Beshada@gov.mb.ca>

Cc: PROSKURNIAK Andy <Andy.PROSKURNIAK@ca.lactalis.com>; LENEVEU Anthony <anthony.leneveu@ca.lactalis.com>; Atli Eyvindson <aevindson@scvconsultingltd.com>; Burland Ross, Siobhan (CC) <Siobhan.BurlandRoss@gov.mb.ca>

Subject: Re: File 182.10 Lactalis St. Claude EAP Application - Additional Info Request

Good Morning Eshetu,

Please find attached the additional documents and information as requested in the Additional Request Info Letter dated January 20 2022. Please note that the permit to legalize the existing access connections to PR 240 is still ongoing and may take some time to complete.

Thanks,
Kevin



Kevin Poirier, (he/him), P.Eng., CSR-P.

Director & Principal Consultant

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St. Claude EAP Review Questions –Responses

PROJECT NUMBER: 21-3108

DATE: June 29, 2022

The purpose of this document is to provide revised draft responses for discussion with Lactalis for the questions received from Manitoba Conservation and Climate (MCC) regarding the St. Claude Facility's EAP submission. The purpose is also to determine path forward for some items (ie. wells, Manitoba infrastructure permit).

1. Is any dust collection system installed in the facility to mitigate potential dust emission from milk powder production?

Yes, a wet/spray scrubber is employed to mitigate potential dust emissions form milk powder production. The make of the wet scrubber is Majonnier, Model D4-12. Please find attached the associated detailed drawing from original installation.

2. You are required to obtain a permit from Manitoba Infrastructure to legalize the existing access connections to PR 240 and for any structures/signs that fall within the controlled area of PR 240.

We have submitted our application to legalize the existing access, please find attached the associated application files. The application process is ongoing. A site survey and remediation work to the entrance may be required.

3. Provide legible scaled Drawings for:

- a. The Process Flow Drawing with legend. (Figure 3 is not legible)

Revised full size attached, filename: *Item 3.A. REVISED_Figure 3.pdf*

- b. The wastewater collection at the development with proper and clear legend. The drawings in appendix B are not legible.

Revised drawing attached, filename: *Item 3.B. Waste and Sewage.pdf*

- c. Site plan showing the surface drainage of the development; including the location of berms, receiving ditches, sewers and depressions, and control structures. Also including parking, storage, staging, processing and administrative areas.

Additional and revised drawings attached. Unfortunately we do not have anything with a higher resolution. (Includes files: *Item 3.C. Elevations and Drainage Flow.pdf*). Please also see the updated *REVISED_Figure 3.pdf*

4. Provide a list and descriptions of dangerous goods, including hazardous waste, used or stored at the development, including hazard class, quantity used and stored state of material, storage location and contained description.

Please see attached files named: *Item 4. Chemical and Hazardous Storage.pdf* and *Item 4. Chemical Storage List*

Also note that used oil ~500L/year, service provider is Notre Dame Used Oil (Class 3).

5. Provide detailed description of cleaning chemicals and their potential environmental impacts.

Cleaning chemicals used include:

| Cleaning Chemicals | Potential Environmental Effects as listed under Section 12 from SDS sheets |
|--------------------|---|
| AC 55-5 | This product has no known ecotoxicological effects. Note that it is corrosive and contains nitric acid and phosphoric acid. |
| Zinnfest | Potentially toxic to aquatic life. Note that it contains chlorine. |
| Exelerate 320 | This product has no known ecotoxicological effects. Note that it is an irritant. |
| MIP 205 | Harmful to aquatic life. Note that it is corrosive. |
| Dy-Gest I/ II | Toxic to aquatic life. Note that it is corrosive. |
| Ster-Bac | Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Note that it is corrosive. |
| Oxonnia | Harmful to aquatic life. Note that it may be an oxidizer, flammable, corrosive, and an irritant. |
| Chlorine XY-12 | Very toxic to aquatic life. Note that it is corrosive. |
| Defoamer | This product has no known ecotoxicological effects. Note that it is not listed as a hazardous substance. |

Please note that the above potential environmental effects are listed for product as purchased. These cleaning chemicals are heavily diluted with water, often over 100X by volume.

6. Provide a list of the wastewater streams, categorized by the source of the wastewater. If chemicals are added to the wastewater, or tests performed, identify the chemicals or tests used.

1. **Process Wastewater (from manufacturing area).** Chemicals are added in the process wastewater storage pits. Testing is also completed on the process wastewater in the storage pits prior to it being released. The chemicals added to the wastewater include aluminum sulphate, also known as alum (minimum once per day). After the alum treatment, all water is sampled and analyzed onsite for COD and pH using HACH test kits. Please see the attached HACH product details (Attached as Item 6 files).
2. **Domestic Wastewater (from bathrooms).** No chemicals added or tests performed.

7. Clearly indicate if domestic wastewater and process wastewater are mixed.

The domestic and process wastewater streams are separate within the Facility. They combine outside of the Facility just prior discharge to the town sewer, downstream of the wastewater collection pits.

8. Provide a summary of the laboratory test results for the wastewater characteristic before and after alum treatment, for the year 2020. Also provide historic/current average records or diagrams for the wastewater flow.

Please find attached wastewater sampling and flow data that is available for the 2020 year. Saved as Item 8. COD - Discharge data.xls.

9. Provide the number of wastewater storage pits and their sizes located at the development. Describe the frequency disposal and method used to dispose of the sludge accumulated in the pits.

There are four wastewater storage pits onsite. Sludge that accumulates in the pits is disposed of using a vacuum truck. One contractor comes three times per year to pump out all pits (All-Kleen Septic). One pit in wash bay (750gal), this is pumped up into the chill water room pit (runs based on float level). One in plant (5000gal) in the chill water room and two settling pits outside (2000gal each). Wastewater overflows from one pit to the second before flowing into the sewer system.

10. The provincial water well database contains two deep wells that were drilled at the development site in 1967. One of the well reports indicates that the well is located 150 feet west of the facility. The reports indicate the groundwater is salty. If these wells are still present and not being used, they should be sealed as required by the Groundwater and Water Well Act. Wells containing saline water must be sealed by a licensed water well drilling contractor.

One well is in the building and is sealed and capped (encased in concrete) Please see the attached photo. The exterior well, located 150 feet to the west of the Facility remains open and in use. Currently Lactalis plans to continue usage of this well on an ad hoc basis.

11. Provide the daily and weekly truck traffic information at the facility per week:

Number of trucks per week:

Tanker Trucks:

- **Milk: 30**
- **Cream: 7**
- **Buttermilk: 1**
- **Refrigerated truck: 5**

Truck for shipping powder: 3

Trucks receiving parts/chemicals: 2

Average daily trucks: 7



Application for Permit

Access onto and/or Structures adjacent to a Provincial Highway in a Controlled Area

This application, if approved, does not dispense with the holder thereof complying with all terms and conditions of any municipal by-law or zoning regulation.

REQUIRED DOCUMENTATION (Application will not be processed until ALL information is submitted)

- Copy of the current land title certificate
- Sketch of the affected property showing the locations and details of proposed construction, removal and/or tree planting including all existing access, structures, etc.
- If declaration of right-of-way is applied for, copy of declaration of right-of-way agreement
- If subdivision is involved, copy of subdivision conditional approval
- Application fee payable to **Minister of Finance**

TYPE OF CONSTRUCTION (check one or more of the following)

| | | |
|--|--|--|
| <input type="checkbox"/> Construct an access | <input type="checkbox"/> Remove an existing access | <input checked="" type="checkbox"/> Legalize an existing structure |
| <input type="checkbox"/> Intensify the use of an existing access | <input type="checkbox"/> Construct a public road | <input type="checkbox"/> Plant trees and /or shrubs |
| <input checked="" type="checkbox"/> Legalize an existing access | <input type="checkbox"/> Declaration of right-of-way (Easement) | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Modify / Widen an existing access | <input type="checkbox"/> Construct / Remove a structure (above / below ground) | |
| <input type="checkbox"/> Relocate an existing access | <input type="checkbox"/> Construct an addition to structure | |

GENERAL PROPERTY INFORMATION

| | | | |
|--|--------------------------|--------------------------------------|----------------|
| Highway No. 240 | Land Title No. 2280302/4 | Subdivision File No. (if applicable) | |
| Quarter SE | Section 16 | Township 8 | Range 7 W.P.M. |
| RL / OTM | | Parish / Settlement of | |
| Lot 1 | Block | Plan 1238 | |
| City / Town / Village St. Claude | | RM / Municipality Grey-West | |
| Proposed Use of Land / Access: <input type="checkbox"/> Agricultural <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Public <input type="checkbox"/> Other: _____ | | | |

PROPOSED ACCESS DRIVEWAY

| | |
|---|------------------------------------|
| Location of requested access: <u>3</u> metres from <u>NE</u> corner of property | |
| Proposed top of access (width): <u>75</u> metres | If temporary: _____ months / years |

PROPOSED STRUCTURES

| | | |
|-----------|-----------------------------------|--|
| Type: N/A | Size: _____ metres x _____ metres | Setback from property line: _____ metres |
| Type: | Size: _____ metres x _____ metres | Setback from property line: _____ metres |
| Type: | Size: _____ metres x _____ metres | Setback from property line: _____ metres |

PROPOSED TREE PLANTING

| | |
|--|--|
| Type of Planting: <input type="checkbox"/> Coniferous <input type="checkbox"/> Deciduous | Setback from property line: _____ metres |
|--|--|

REASON FOR APPLICATION

| |
|---|
| Legalization of existing access to PR 240 in conjunction with EAP submission. |
|---|

REGISTERED LANDOWNER

APPLICANT

| | |
|---|--|
| First Name <u>Andy</u> | First Name <u>Andy</u> |
| Last Name <u>Proskurniak</u> | Last Name <u>Proskurniak</u> |
| Company Name <u>Lactalis Canada Inc</u> | Company Name <u>Lactalis Canada Inc</u> |
| Address <u>405 THE WEST MALL, SUITE 1000</u> | Address <u>9 PR 240 S</u> |
| Town, Province <u>TORONTO, ON</u> Postal Code <u>M9C5J1</u> | Town, Province <u>St. Claude, MB</u> Postal Code <u>R0G1Z0</u> |
| Telephone No. <u>204-379-2571 ext 231</u> | Telephone No. <u>204-379-2571 ext 231</u> |
| Email Address <u>andy.proskurniak@ca.lactalis.com</u> | Email Address <u>andy.proskurniak@ca.lactalis.com</u> |
| Signature | Signature |

FOR DEPARTMENT USE ONLY

| | |
|---|-----------------|
| Application Fee Received: ____/____/____ (mm/dd/yy) | Region No. |
| Fee Received by | Sketch Plan No. |
| Cash / Cheque / Money Order No. | Record No. |

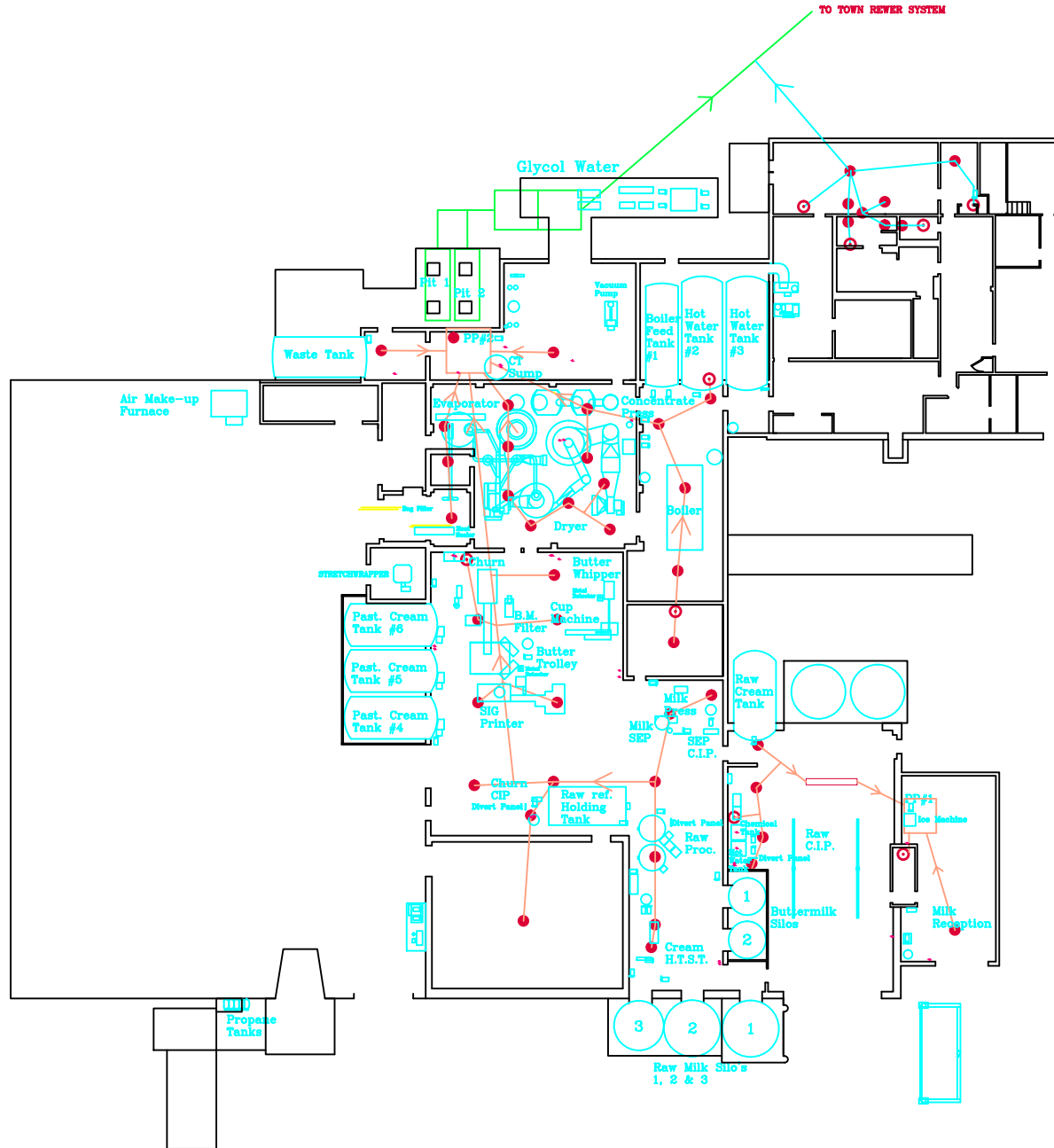
SEWER MAP



DRAIN

— Process

— Sanitary



Production

| Common Name | Supplier | Description | Location | Unit | Max Inventory | | TDG Class |
|---------------------------|--|----------------------------|------------------|--------|---------------|-----|-----------|
| Defoam (aka Foamicide P) | Johnson Diversey | Foam Control Agent | Chemical Room | 18.9 L | 8 | ea | |
| Whisper 400 | EcoLab / Klenzade | Sanitizer | Chemical Room | 3.78 L | 0 | ea | |
| LC 300 Liquid K | EcoLab / Klenzade | Manual Liquid Detergent | Chemical Room | 3.78 L | 12 | ea | |
| Ecocare 250 | EcoLab / Klenzade | Hand Sanitizer | Storage Area | 1 L | 12 | ea | |
| AC 55-5 | EcoLab / Klenzade | Passivating Acid Detergent | Chemical Room | 1150 L | 2 | L | Class 8 |
| Dy-Gest I | EcoLab / Klenzade | Enzyme Cleaner | Chemical Room | 208 L | 4 | L | |
| DY-Gest II | EcoLab / Klenzade | Enzyme Cleaner | Chemical Room | 208 L | 4 | L | |
| Ecocare 360 | EcoLab / Klenzade | Hand Sanitizer | Storage Area | 2 L | 12 | ea | |
| Ecocare 360 | EcoLab / Klenzade | Hand Sanitizer | Storage Area | 3.78 L | 12 | ea | |
| HC-10 | EcoLab / Klenzade | Powdered Detergent | Chemical Room | 200 KG | 4 | kg | |
| MIP 205 | EcoLab / Klenzade | Caustic Cleaner | Chemical Room | 1150 L | 4 | L | Class 8 |
| Oxonia | EcoLab / Klenzade | Sanitizer | Chemical Room | 205 L | 4 | L | Class 5.2 |
| Ster-Bac | EcoLab / Klenzade | Quaternary Sanitizer | Chemical Room | 208 L | 4 | L | |
| Zinnfest | EcoLab / Klenzade | Cleaner / Disinfectant | Chemical Room | 200 KG | 4 | kg | |
| Exelerate 320 - Monophase | EcoLab / Klenzade | Monophase Additive | Chemical Room | 208 L | 4 | L | |
| Chlorine XY-12 | EcoLab / Klenzade | Disinfectant | Chill Water Room | 208 L | 12 | L | Class 8 |
| Penn Flo 51 | EcoLab / Klenzade | Cream Neutralizer | Chemical Room | 180 KG | 1 | kg | |
| Fortress | EcoLab / Klenzade | Hand Sanitizer | Storage Area | 750 ML | 36 | ea | |
| Ecocare 250 | EcoLab / Klenzade | Hand Sanitizer | Storage Area | 750 ML | 36 | ea | |
| Aluminum Sulfate | Thunder Bay Chemicals aka Dow Chemicals | Use for the Pits | Chill Water Room | 20 KG | 6 | BAG | |

Maintenance

| Common Name | Supplier | Description | Location | Unit | Max Inventory | | TDG Class |
|------------------------|-------------------|---------------------|-------------------------|-------|---------------|-----|-----------|
| Waste Oil | | Waste Oil | Chill Water Room | 205L | 5 | ea | Class 3 |
| Varsol(Solvent) | COOP | Varsol | Shop | 3L | 2 | ea | |
| Potassium Permanganate | N/A | N/A | N/A | N/A | N/A | ea | |
| Oxalic Acid | N/A | N/A | N/A | N/A | N/A | ea | |
| Ferrous Sulfate | N/A | N/A | N/A | N/A | N/A | N/A | |
| R12 Blend Ref. | N/A | N/A | N/A | N/A | N/A | L | |
| Oils and Greases | Petro canada /LPS | Oil Grease | Shop | Minor | Minor | L | |
| Chlorine | sanimarc | chlorine | arehouse/chill water ro | 205L | 6 | ea | Class 2.3 |
| Boiler Chemical | Nor-chem | | chill water room | 4L | 10 | ea | |
| Waste Lab Chem | | Waste Lab chemicals | chill water room | 205L | 1 | kg | |
| | | | | | | L | |
| | | | | | | BAG | |

LAB

Lab Chemicals- February 17, 2022

| Name | Physical State | On Hand |
|----------------------------------|----------------|--------------|
| Acetone | Liquid | 1 L |
| Bronopol | Tablet | 3000 tablets |
| Buffer solution pH 4 | Liquid | 12 L |
| Buffer solution pH 7 | Liquid | 8.3 L |
| Buffer solution pH 10 | Liquid | 8.7 L |
| Buffer substrate | Tablet | 104 tablets |
| Butanol | Liquid | 4.3 L |
| COD standard solution 300 mg/L* | Liquid | 100 ml |
| COD standard solution 1000 mg/L* | Liquid | 100 ml |
| Complexing Agent R#84 | Liquid | 60 ml |
| CQC Reagent | Tablet | 25 tablets |
| Chamber Brite | Powder | 5 packets |
| Chlorine (CHEMets Refill) | Liquid | 46 ampoules |
| Denatured alcohol | Liquid | 6 L |
| Drierite | Granules | 1.7 kg |
| Electrolyte solution | Liquid | 70 ml |
| FOSS Descaler | Granules | 9 sachets |
| FOSS Fos-Soak** | Powder | 400 ml |
| FOSS S-470 Cleaning agent** | Powder | 32 sachets |
| FOSS MSc Wash | Powder | 75 sachets |
| FOSS MSc Zero Concentrate | Liquid | 38 sachets |

| | | |
|--|----------|--------------|
| H2SO4 0.5 N R#9 | Liquid | 120 ml |
| H2SO4 1.0 N R#3 | Liquid | 120 ml |
| H2SO4 50% R#101 | Liquid | 180 ml |
| Hydrochloric Acid | Liquid | 2 L |
| 0.5 N Hydrochloric Acid-052** | Liquid | 250 ml |
| 5 N Hydrochloric Acid-048 | Liquid | 300 ml |
| Immersion oil | Liquid | 16 oz |
| Indicator P-014 | Liquid | 350 ml |
| KI 50% R#81 | Liquid | 180 ml |
| L-W Stain, Xylene Formula | Liquid | 550 ml |
| M-Colibblue24 Broth | Liquid | 102 ampoules |
| Methanol | Liquid | 800 ml |
| Molybvanadate Reagent* | Liquid | 25 ml |
| Oxygen Catalyst-040** | Liquid | 500 ml |
| Phenyl Phosphate | Powder | 100 g |
| Phenolphthalein R#61 | Liquid | 120 |
| Phenolphthalein solution | Liquid | 450 ml |
| Phosphate buffer | Powder | 450 g |
| Phosphoric acid-071 | Liquid | 250 ml |
| Phosphorus UHR TNT Reagent vials* | Liquid | 22 vials |
| Phosphorus UHR TNT Reagent B* | Liquid | 12 ml |
| Potato Dextrose Agar | Powder | 250 g |
| 10% Potassium Iodide-018** | Liquid | 700 ml |
| Propanol | Liquid | 12 L |
| QAC DT R#71 | Liquid | 60 ml |
| Quat Indicator-041 | Liquid | 250 ml |
| Quat 10x Titrant-042 | Liquid | 450 ml |
| Quat 50x Titrant-043 | Liquid | 250 ml |
| Resolve High Viscosity | Liquid | 160 ml |
| Rubber stamp ink black | Liquid | 700 ml |
| Rubber stamp ink red | Liquid | 800 ml |
| Skim Milk Powder | Powder | 450 g |
| Sodium bicarbonate | Powder | 500 g |
| Sodium carbonate | Powder | 500 g |
| 1N Sodium hydroxide-086** | Liquid | 400 ml |
| Sodium hydroxide 5.0N R#23 | Liquid | 120 ml |
| Sodium hydroxide solution 1.54 N* | Liquid | 250 ml |
| 1N Sodium thiosulfate-067** | Liquid | 200 ml |
| Sodium hydroxide 0.1 N standard solution | Liquid | 5 L |
| Sodium thiosulfate pentahydrate | Crystals | 800 g |
| Sodium thiosulfate 0.1N R#41 | Liquid | 60 ml |
| Sodium thiosulfate solution R#48 | Liquid | 180 ml |
| Sodium thiosulfate 1.0N R#121 | Liquid | 120 ml |
| N/20 Sodium thiosulfate-069 | Liquid | 200 ml |
| Standard Methods Agar | Powder | 200 g |
| Starch 1% | Liquid | 180 ml |
| Starch Indicator-038 | Liquid | 250 ml |
| Sulfuric Acid** | Liquid | 2.5 L |
| Sodium Chloride | Crystals | 4.5 kg |
| Toluidine Blue O | Liquid | 60 ml |
| 2,3,5-Triphenyltetrazolium chloride** | Powder | 5 g |
| Tartaric Acid | Powder | 200 g |
| TTC Solution 1% | Liquid | 15 ml |

* In chill room

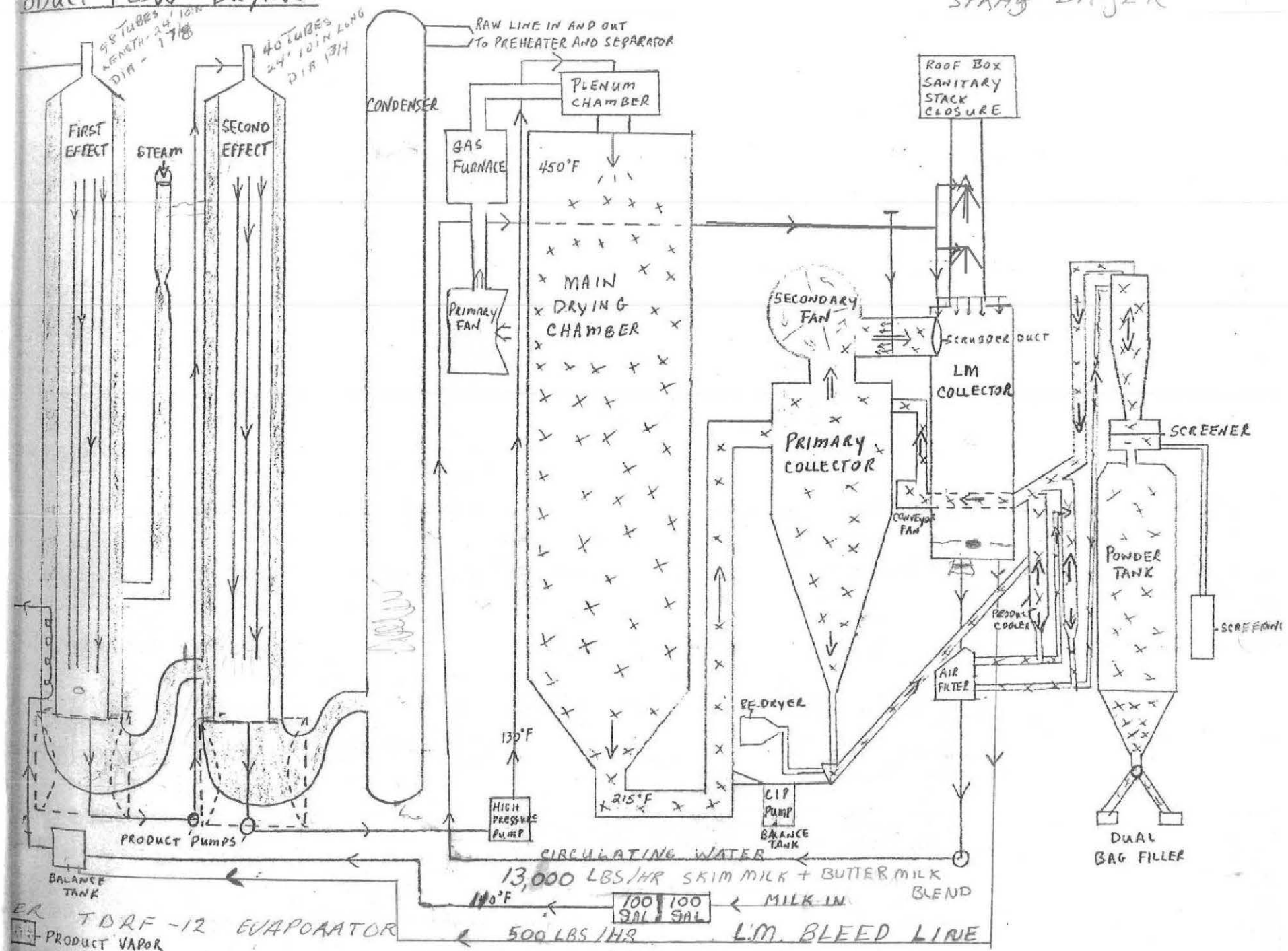
** Not in use

MODERN DAIRIES - ST CLAUDE

110500011ER
MODEL D4-12

SPRAY DRYER

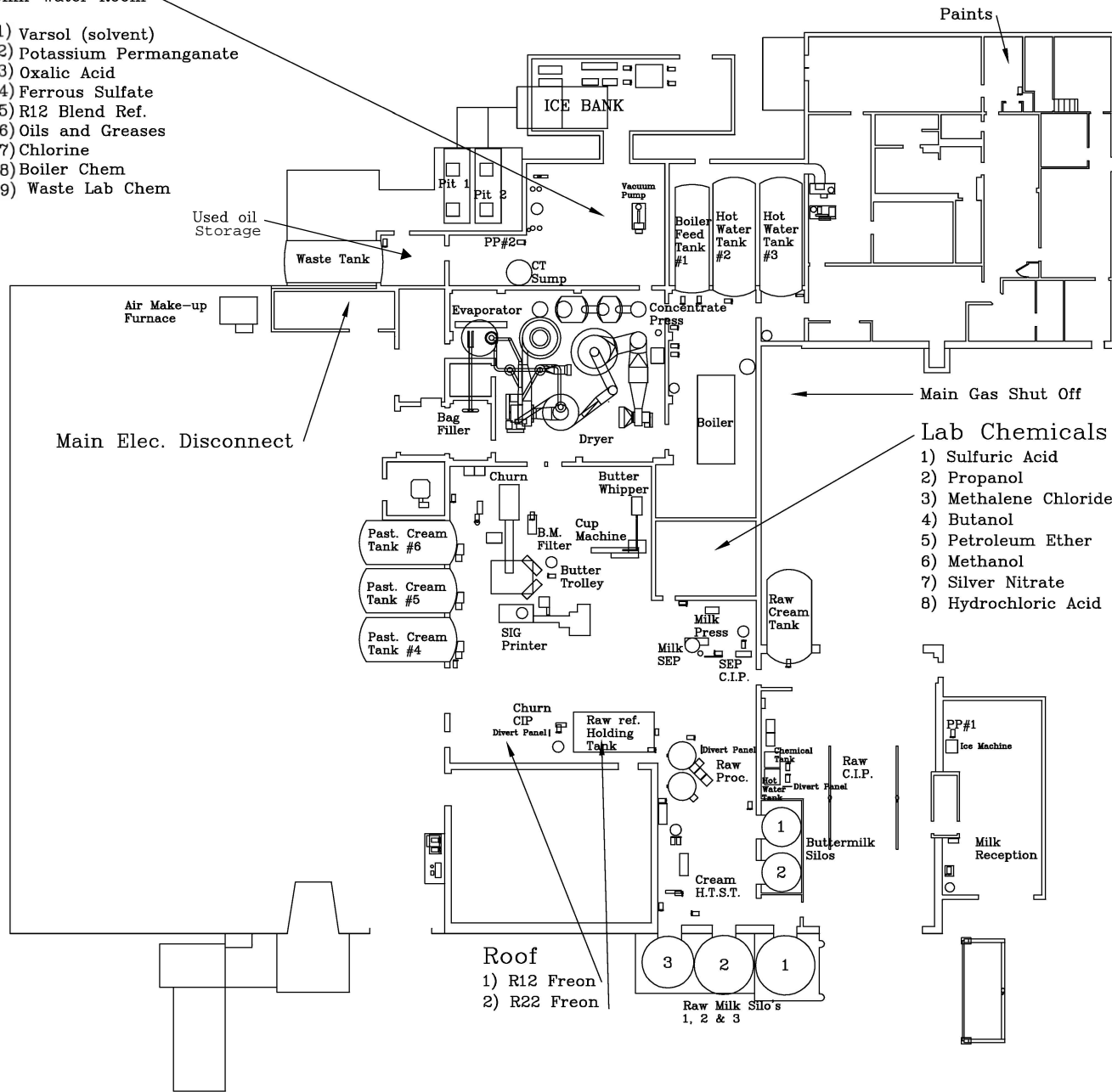
PRODUCT FLOW - DRYING



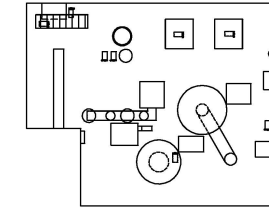
TDRF-12 EVAPORATOR
 □ - PRODUCT VAPOR
 x x - MILK POWDER

Chill-Water Room

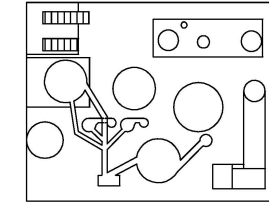
- 1) Varsol (solvent)
- 2) Potassium Permanganate
- 3) Oxalic Acid
- 4) Ferrous Sulfate
- 5) R12 Blend Ref.
- 6) Oils and Greases
- 7) Chlorine
- 8) Boiler Chem
- 9) Waste Lab Chem



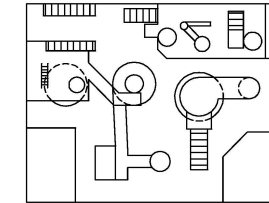
MAIN FLOOR



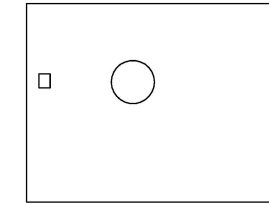
SECOND FLOOR



THIRD FLOOR



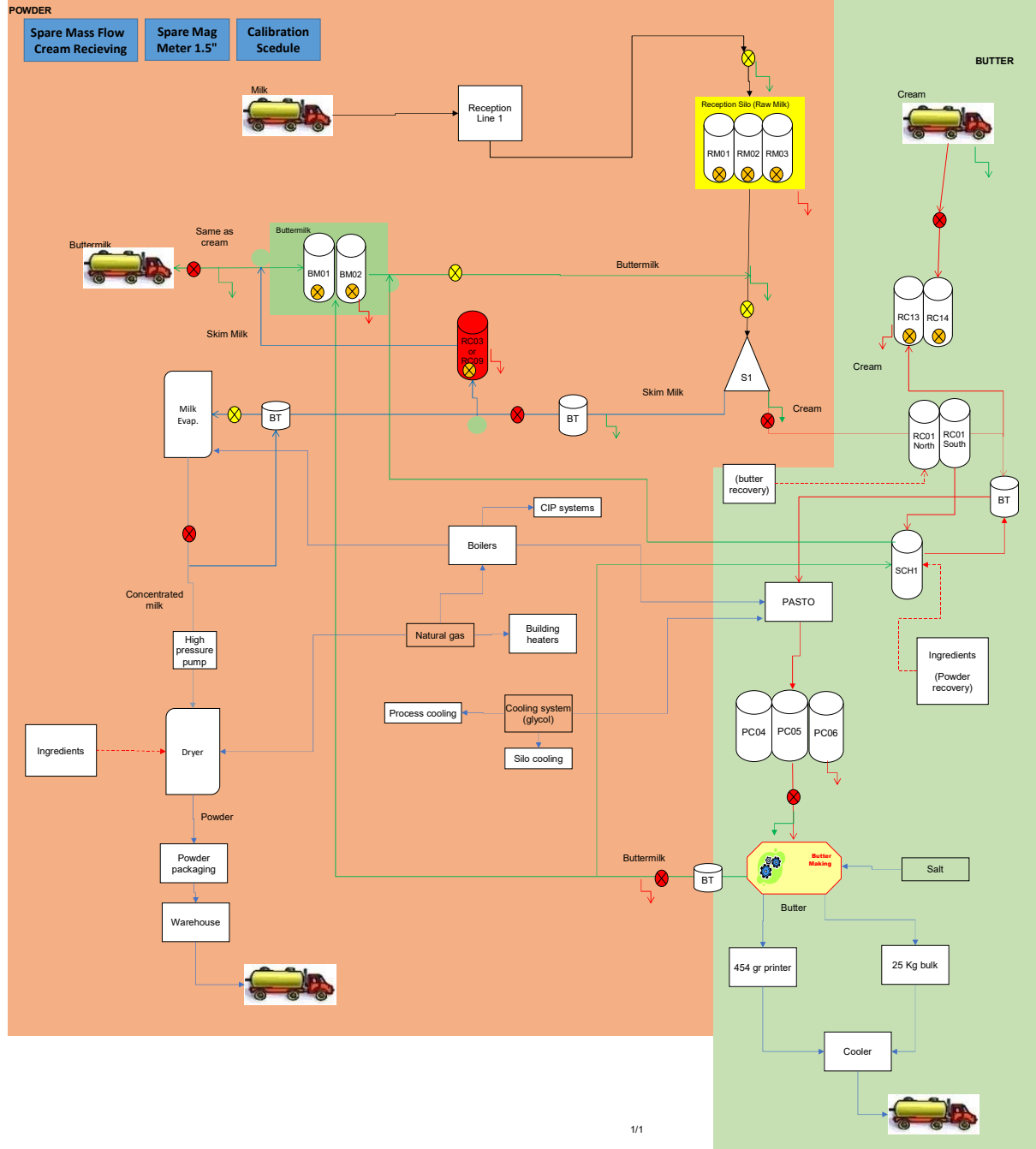
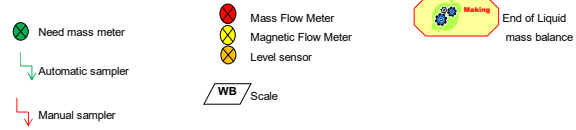
ROOF



CA - PARMALAT - ST-CLAUDE PLANT

Confidential/Confidential

Update 13-Jan-20





COD2 Digestion Vials, HR, Mercury-free, pk/150



Product #: 2565115-CA
CAD Price: \$454.72
Ships within 6-8 weeks

 **Hazardous**

Items with this mark may be considered hazardous under some shipping conditions.

If necessary, we will change your selected shipping method to accommodate these items.

For high range, mercury-free Chemical Oxygen Demand (COD) determinations.

COD2 Digestion Vials, Mercury-Free Formulation.

Range: 20-1500 mg/L COD.

Pack of 150 vials

Specifications

| | |
|---------------------|--------------------------------------|
| Digestion Required: | Yes |
| Instrument: | All except DR 900, PC II |
| Method Name: | Reactor Digestion |
| Number of tests: | 150 |
| Parameter: | Chemical Oxygen Demand, Mercury-Free |
| Range: | 20 - 1,500 mg/L |

Required Accessories

- Gloves, Disposable, Powder Free, Nitrile, Medium (Item 2550502)
- Gloves, Disposable, Powder Free, Nitrile, X-Large (Item 2550504)
- Gloves, Disposable, Powder Free, Nitrile, Small (Item 2550501)
- Gloves, Disposable, Powder Free, Nitrile, Large (Item 2550503)



Be Right™

SAFETY DATA SHEET

Issue Date 05-Feb-2019

Revision Date 05-Feb-2019

Version 4

1. IDENTIFICATION

Product identifier

Product Name Chemical Oxygen Demand Standard Solution 300 mg/L COD

Other means of identification

Product Code(s) 1218629

Safety data sheet number M00587

UN/ID no UN3082

Recommended use of the chemical and restrictions on use

Recommended Use Determination of Chemical Oxygen Demand

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Initial Supplier Identifier

Hach Sales & Service LP. 3020 Gore Road, London, Ontario N5V 4T7 Canada Tel: 1-800-665-7635

Manufacturer Address

Hach Company P.O. Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
CANUTEC 613-992-4624

2. HAZARD IDENTIFICATION

Classification

Chronic aquatic toxicity

Category 2

Label elements

Hazard statements

H411 - Toxic to aquatic life with long lasting effects



Precautionary Statements

P273 - Avoid release to the environment

P391 - Collect spillage

P501 - Dispose of contents/ container to an approved waste disposal plant

Unknown Acute Toxicity

0.0005 % of the mixture consists of ingredient(s) of unknown toxicity.

0.0005 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

0.0005 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

Other Hazards Known

Toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Chemical Family

Mixture.

Chemical nature

Aqueous alkaline solution of organic and inorganic salts.

| Chemical name | Synonyms | CAS No. | Percent Range | Units | HMIRA # |
|--------------------------------------|----------------|-----------|---------------|-------|---------|
| Sulfuric acid, copper(2+) salt (1:1) | Copper sulfate | 7758-98-7 | <0.01% | g | - |

4. FIRST AID MEASURES

Description of first aid measures

General advice

No hazards which require special first aid measures. Use first aid treatment according to the nature of the injury.

Inhalation

Remove to fresh air.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms

See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

| | |
|---|--|
| Suitable Extinguishing Media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable Extinguishing Media | Caution: Use of water spray when fighting fire may be inefficient. |
| Specific hazards arising from the chemical | No information available. |
| Hazardous combustion products | This material will not burn. |
| Special protective equipment for fire-fighters | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

WHMIS Notice Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions Ensure adequate ventilation.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

| Chemical name | Alberta OEL | British Columbia OEL | Manitoba OEL | New Brunswick OEL | New Foundland & Labrador OEL |
|---|-------------|----------------------|--------------------------|-------------------|------------------------------|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | NDF | NDF | TWA: 1 mg/m ³ | NDF | TWA: 1 mg/m ³ |

| Chemical name | Northwest Territories OEL | Nova Scotia OEL | Nunavut OEL | Ontario TWA | Prince Edward Island OEL |
|---|---------------------------|--------------------------|-------------|-------------|--------------------------|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | NDF | TWA: 1 mg/m ³ | NDF | NDF | TWA: 1 mg/m ³ |

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH |
|---|--------------------------|----------|---|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | TWA: 1 mg/m ³ | NDF | IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist |

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection No special protective equipment required.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid
Appearance aqueous solution
Color colorless
Odor Odorless
Odor threshold Not applicable

| Property | Values | Remarks • Method |
|------------------|----------------|------------------|
| Molecular weight | Not applicable | |
| pH | 4.7 | |

| | |
|--|---|
| Melting point/freezing point | ~ 0 °C / 32 °F |
| Boiling point / boiling range | ~ 100 °C / 212 °F |
| Evaporation rate | 1 (water = 1) |
| Vapor pressure | 17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F |
| Vapor density (air = 1) | 0.62 |
| Specific gravity (water = 1 / air = 1) | 0.987 |
| Partition Coefficient (n-octanol/water) | No data available |
| Soil Organic Carbon-Water Partition Coefficient | Not applicable |
| Autoignition temperature | No data available |
| Decomposition temperature | No data available |
| Dynamic viscosity | 1 cP (mPa s) at 20 °C / 68 °F |
| Kinematic viscosity | 1.013 cSt (mm ² /s) at 20 °C / 68 °F |

Solubility(ies)

Water solubility

| <u>Water solubility classification</u> | <u>Water solubility</u> | <u>Water Solubility Temperature</u> |
|--|-------------------------|-------------------------------------|
| Soluble | > 1000 mg/L | 25 °C / 77 °F |

Solubility in other solvents

| <u>Chemical Name</u> | <u>Solubility classification</u> | <u>Solubility</u> | <u>Solubility Temperature</u> |
|-----------------------------|----------------------------------|-------------------|-------------------------------|
| Acid | Soluble | > 1000 mg/L | 25 °C / 77 °F |
| Most Polar Organic Solvents | Soluble | > 1000 mg/L | 25 °C / 77 °F |

Other Information

Metal Corrosivity

| | |
|--------------------------------|-------------------|
| Steel Corrosion Rate | No data available |
| Aluminum Corrosion Rate | No data available |

Volatile Organic Compounds (VOC) Content

| <u>Chemical name</u> | <u>CAS No.</u> | <u>Volatile organic compounds (VOC) content</u> | <u>CAA (Clean Air Act)</u> |
|--------------------------------------|----------------|---|----------------------------|
| Sulfuric acid, copper(2+) salt (1:1) | 7758-98-7 | No data available | - |

Explosive properties

| | |
|------------------------------|----------------|
| Upper explosion limit | Not applicable |
| Lower explosion limit | Not applicable |

Flammable properties

| | |
|--------------------|-------------------|
| Flash point | No data available |
|--------------------|-------------------|

| | |
|----------------------------------|--------------------|
| Flammability Limit in Air | |
| Upper flammability limit | No data available |
| Lower flammability limit | No data available |
| Oxidizing properties | No data available. |
| Bulk density | No data available |

10. STABILITY AND REACTIVITY

Reactivity

Not applicable.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation No known effect based on information supplied.
Eye contact No known effect based on information supplied.
Skin contact No known effect based on information supplied.
Ingestion No known effect based on information supplied.

Symptoms No information available.

Acute toxicity

Based on available data, the classification criteria are not met

Product Acute Toxicity Data

No data available.

Ingredient Acute Toxicity Data

Test data reported below.

Oral Exposure Route

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|----------------------|---------------|---------------|-----------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Rat LD ₅₀ | 300 mg/kg | None reported | None reported | ERMA (New Zealand's Environmental Risk Management Authority) |

Dermal Exposure Route

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|-----------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Rabbit LD ₅₀ | > 1000 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |

Unknown Acute Toxicity

0.0005 % of the mixture consists of ingredient(s) of unknown toxicity.

- 0.0005 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0.0005 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
- 0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 0.0005 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

Acute Toxicity Estimations (ATE)

| | |
|--------------------------------------|--------------------------|
| ATEmix (oral) | No information available |
| ATEmix (dermal) | No information available |
| ATEmix (inhalation-dust/mist) | No information available |
| ATEmix (inhalation-vapor) | No information available |
| ATEmix (inhalation-gas) | No information available |

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|----------------------|---------|---------------|---------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Standard Draize Test | Rabbit | 500 mg | 4 hours | Skin irritant | ECHA (The European Chemicals Agency) |

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|---------------|---------------|---------------|---------------|--------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | None reported | None reported | None reported | None reported | Eye irritant | ECHA (The European Chemicals Agency) |

Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

Product Sensitization Data

No data available.

Ingredient Sensitization Data

No data available.

STOT - single exposure

Based on available data, the classification criteria are not met.

Product Specific Target Organ Toxicity Single Exposure Data

No data available.

Ingredient Specific Target Organ Toxicity Single Exposure Data

No data available.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Product Specific Target Organ Toxicity Repeat Dose Data

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

No data available.

Carcinogenicity

Based on available data, the classification criteria are not met.

Product Carcinogenicity Data

No data available.

Ingredient Carcinogenicity Data

No data available.

| Chemical name | CAS No. | ACGIH | IARC | NTP | OSHA |
|--------------------------------------|-----------|-------|------|-----|------|
| Sulfuric acid, copper(2+) salt (1:1) | 7758-98-7 | - | - | - | - |

Legend

| | |
|---|----------------|
| ACGIH (American Conference of Governmental Industrial Hygienists) | Does not apply |
| IARC (International Agency for Research on Cancer) | Does not apply |
| NTP (National Toxicology Program) | Does not apply |
| OSHA (Occupational Safety and Health Administration of the US Department of Labor) | Does not apply |

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

Test data reported below.

| Chemical name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|----------------|------------------|---------------|---------------|---------------------------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | DNA inhibition | Human lymphocyte | 0.076 mmol/L | None reported | Positive test result for mutagenicity | RTECS (Registry of Toxic Effects of Chemical Substances) |

Product Germ Cell Mutagenicity *invivo* Data

No data available.

Ingredient Germ Cell Mutagenicity *invivo* Data

No data available.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Product Reproductive Toxicity Data

No data available.

Ingredient Reproductive Toxicity Data

No data available.

Aspiration hazard

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Unknown Acute Toxicity

0.0005 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Product Ecological Data

Aquatic Acute Toxicity

No data available.

Aquatic Chronic Toxicity

No data available.

Ingredient Ecological Data

Aquatic Acute Toxicity

Test data reported below.

Fish

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|----------------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 96 hours | <i>Pimephales promelas</i> | LC ₅₀ | 0.0028 mg/L | Vendor SDS |

Crustacea

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|----------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 48 Hours | <i>Daphnia magna</i> | EC ₅₀ | 0.0014 mg/L | Vendor SDS |

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|---------------------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 72 Hours | <i>Thalassiosira pseudonana</i> | EC ₅₀ | 0.005 mg/L | ERMA (New Zealand's Environmental Risk Management Authority) |

Aquatic Chronic Toxicity

No data available.

**Canadian Environmental Protection Act (CEPA) - Domestic Substances List (DSL):
Environmentally Hazardous Substances Categorizations**

| Chemical name | Category | Persistent | Bioaccumulation | Inherently Toxic to Aquatic Organisms |
|--|------------|------------|-----------------|---------------------------------------|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Inorganics | Yes | No | Yes |

Persistence and degradability

Product Biodegradability Data

No data available.

Bioaccumulation

Product Bioaccumulation Data

No data available.

Partition Coefficient (n-octanol/water)

No data available

Mobility

Soil Organic Carbon-Water Partition Coefficient

Not applicable

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Do not reuse empty containers.

14. TRANSPORT INFORMATION

Transport Canada

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 DOT Technical Name Sulfuric acid, copper(2+) salt (1:1)
 Hazard Class 9
 Packing Group III
 Emergency Response Guide Number 171

TDG

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 TDG Technical Name Sulfuric acid, copper(2+) salt (1:1)
 Hazard Class 9
 Packing Group III
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Sulfuric acid, copper(2+) salt (1:1)), 9, III

IATA

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 IATA Technical Name Sulfuric acid, copper(2+) salt (1:1)
 Hazard Class 9
 Packing Group III
 ERG Code 9L
 Special precautions for user A97, A158
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Sulfuric acid, copper(2+) salt (1:1)), 9, III

IMDG

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 IMDG Technical Name Sulfuric acid, copper(2+) salt (1:1)
 Hazard Class 9
 Packing Group III
 EmS-No F-A, S-F
 Special precautions for user 274, 335
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Sulfuric acid, copper(2+) salt (1:1)), 9, III, Marine Pollutant

Note: No special precautions necessary.

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following: UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

Regulatory information

National Inventories

DSL/NDSL Complies

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

TSCA Complies
 EINECS/ELINCS Complies
 ENCS Complies

| | |
|-------|----------|
| IECSC | Complies |
| KECL | Complies |
| PICCS | Complies |
| TCSI | Complies |
| AICS | Complies |
| NZIoC | Complies |

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

Canada - CEPA - Mercury Containing Products

None

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

NFPA and HMIS Classifications

| | | | | |
|-------------|---------------------------|-------------------------|-----------------------------|---|
| NFPA | Health hazards - 0 | Flammability - 0 | Instability - 0 | Physical and chemical properties - |
| HMIS | Health hazards - 0 | Flammability - 0 | Physical hazards - 0 | Personal protection - X |

Key or legend to abbreviations and acronyms used in the safety data sheet

| | |
|------------|---|
| NIOSH IDLH | <i>Immediately Dangerous to Life or Health</i> |
| ACGIH | ACGIH (American Conference of Governmental Industrial Hygienists) |
| NDF | <i>no data</i> |

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | |
|-----|---------------------------------|---------|--|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| MAC | Maximum Allowable Concentration | Ceiling | Ceiling Limit Value |
| X | Listed | Vacated | These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state |

regulations.

| | | | |
|------|---------------------------|------|-----------------------|
| SKN* | Skin designation | SKN+ | Skin sensitization |
| RSP+ | Respiratory sensitization | ** | Hazard Designation |
| C | Carcinogen | R | Reproductive toxicant |
| M | mutagen | | |

Prepared By Hach Product Compliance Department

Issue Date 05-Feb-2019

Revision Date 05-Feb-2019

Revision Note
None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2019

End of Safety Data Sheet



Be Right™



Phosphorus (Total) TNT Reagent Set, High Range Molybdovanadate

Product #: 2767245-CA
CAD Price: \$212.80
Available

 **Hazardous**

Items with this mark may be considered hazardous under some shipping conditions.

If necessary, we will change your selected shipping method to accommodate these items.

For determination of Total Phosphorus (phosphate) by the Molybdovanadate Test 'N Tube™ Method.

Hach Method 10127. Range: 1.0 - 100.0 mg/L PO₄

Set includes vials and reagents for 25-50 tests (dependent upon the number of reagent blank tests performed).

Test 'N Tube products provide safe, convenient testing

Capped 16-mm vials provide a self-contained package for mixing and measurement.

Easy ordering

All necessary reagents and vials are contained in the package.

Perform digestions and photometric measurements in the same vial.

Save time, space and effort.

Specifications

| | |
|---------------------|---|
| Description : | Phosphorus, total, TNT reagent set, HR |
| Digestion Required: | Yes |
| Footnote: | †Dependent on the number of performed reagent blanks. *Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist. |
| Instrument: | All except DR/850, DR/820, PC II |
| Method: | 10127 |
| Method Name: | Molybdovanadate |
| Number of tests: | 25 - 50 |
| Parameter: | Total Phosphorous |
| Platform : | Test 'N Tube |
| Range: | 1.0 - 100 mg/L PO ₄ |
| Special Remarks: | Set contains: Cuvette test tubes, Potassiumpersulfate Powder Pillows (2084766), Molybdovanadate Reagent (2076026), Sodiumhydroxide solution 1.54 N (2743042), Sulfuric acid solution 1.37 N (2742900) |

Required Accessories

- Gloves, Disposable, Powder Free, Nitrile, Medium (Item 2550502)
- Gloves, Disposable, Powder Free, Nitrile, X-Large (Item 2550504)
- Gloves, Disposable, Powder Free, Nitrile, Small (Item 2550501)
- Gloves, Disposable, Powder Free, Nitrile, Large (Item 2550503)



Be Right™

SAFETY DATA SHEET

Issue Date 14-Oct-2016

Revision Date 19-Feb-2018

Version 2.2

1. IDENTIFICATION

Product identifier

Product Name Chemical Oxygen Demand Standard Solution 1000 mg/l COD

Other means of identification

Product Code(s) 2253929

Safety data sheet number M00593

Recommended use of the chemical and restrictions on use

Recommended Use Determination of Chemical Oxygen Demand

Uses advised against No information available

Details of the supplier of the safety data sheet

Initial Supplier Identifier

Hach Sales & Service LP. 3020 Gore Road, London, Ontario N5V 4T7 Canada Tel: 1-800-665-7635

Manufacturer Address

Hach Company P.O. Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
CANUTEC 613-992-4624

2. HAZARD IDENTIFICATION

Classification

| | |
|--------------------------|---------------|
| Chronic aquatic toxicity | Category 3*** |
|--------------------------|---------------|

Label elements

Hazard statements

H412 - Harmful to aquatic life with long lasting effects***

Precautionary Statements

P273 - Avoid release to the environment

P501 - Dispose of contents/ container to an approved waste disposal plant***

Unknown Acute Toxicity

- 0 % of the mixture consists of ingredient(s) of unknown toxicity.***
- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity***
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)***

Other Hazards Known

Harmful to aquatic life.***

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable***

Mixture

| Chemical name | Synonyms | CAS No. | Percent Range | Units | HMIRA # |
|--------------------------------------|----------------|-----------|---------------|-------|---------|
| Sulfuric acid, copper(2+) salt (1:1) | Copper sulfate | 7758-98-7 | <0.01% | g | - |

4. FIRST AID MEASURES

Description of first aid measures

- General advice** No hazards which require special first aid measures. Use first aid treatment according to the nature of the injury.
- Inhalation** Remove to fresh air.
- Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
- Skin contact** Wash skin with soap and water.
- Ingestion** Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11 for additional Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable Extinguishing Media** Caution: Use of water spray when fighting fire may be inefficient.
- Specific hazards arising from the chemical** No information available.
- Hazardous combustion products** This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

WHMIS Notice Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions Ensure adequate ventilation.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

| Chemical name | Alberta OEL | British Columbia OEL | Manitoba OEL | New Brunswick OEL | New Foundland & Labrador OEL |
|---|-------------|----------------------|--------------------------|-------------------|------------------------------|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | NDF | NDF | TWA: 1 mg/m ³ | NDF | TWA: 1 mg/m ³ |

| Chemical name | Northwest Territories OEL | Nova Scotia OEL | Nunavut OEL | Ontario TWA | Prince Edward Island OEL |
|---|---------------------------|--------------------------|-------------|-------------|--------------------------|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | NDF | TWA: 1 mg/m ³ | NDF | NDF | TWA: 1 mg/m ³ |

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|--|--------------------------|----------|---|
| Sulfuric acid, copper(2+) salt (1:1) <0.01% | TWA: 1 mg/m ³ | NDF | IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist |

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection No special protective equipment required.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid
Appearance aqueous solution
Color colorless
Odor Odorless
Odor threshold No data available

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|--|---|---|
| Molecular weight | No data available | |
| pH | 4.1 | *** |
| Melting point/freezing point | ~ 0 °C / 32 °F | Estimation based on theoretical calculation *** |
| Boiling point / boiling range | ~ 100 °C / 212 °F | Estimation based on theoretical calculation *** |
| Evaporation rate | 1 (water = 1) Estimation based on theoretical calculation | |
| Vapor pressure | 17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F | *** |
| Vapor density (air = 1) | 0.62 | *** |
| Specific gravity (water = 1 / air = 1) | 0.996 | *** |
| Partition Coefficient (n-octanol/water) | Not applicable | |
| Soil Organic Carbon-Water Partition Coefficient | Not applicable | |
| Autoignition temperature | No data available | |
| Decomposition temperature | No data available | |
| Dynamic viscosity | 1 cP (mPa s) at 20 °C / 68 °F | |
| Kinematic viscosity | 1.004 cSt (mm ² /s) at 20 °C / 68 °F | |

Explosion data

Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization

None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong oxidizing agents, strong acids, and strong bases.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation No known effect based on information supplied.

Eye contact No known effect based on information supplied.

Skin contact No known effect based on information supplied.

Ingestion No known effect based on information supplied.

Aggravated Medical Conditions None known.

Toxicologically synergistic products None known.

Toxicokinetics, metabolism and distribution See ingredients information below.***

| Chemical name | Toxicokinetics, metabolism and distribution |
|--|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Copper compounds are absorbed by gastrointestinal tract and transported to liver bound to serum albumin. |

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Product Acute Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity.***

- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity***
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)***
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)***

Acute Toxicity Estimations (ATE)

| | |
|-------------------------------|--------------------------|
| ATEmix (oral) | No information available |
| ATEmix (dermal) | No information available |
| ATEmix (inhalation-dust/mist) | No information available |
| ATEmix (inhalation-vapor) | No information available |
| ATEmix (inhalation-gas) | No information available |

Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below***

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|-----------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Rat LD ₅₀ | 300 mg/kg | None reported | None reported | ERMA (New Zealand's Environmental Risk Management Authority) |
| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Rabbit LD ₅₀ | 125 mg/kg | None reported | None reported | RTECS (Registry of Toxic Effects of Chemical Substances) |

Dermal Exposure Route

If available, see data below***

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|-----------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Rabbit LD ₅₀ | > 1000 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |

Inhalation (Dust/Mist) Exposure Route

If available, see data below***

Inhalation (Vapor) Exposure Route

If available, see data below***

Inhalation (Gas) Exposure Route

If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route

If available, see data below***

Dermal Exposure Route

If available, see data below***

Inhalation (Dust/Mist) Exposure Route

If available, see data below***

Inhalation (Vapor) Exposure Route

If available, see data below***

Inhalation (Gas) Exposure Route

If available, see data below

Aspiration toxicity

If available, see data below***

Kinematic viscosity

1.004 cSt (mm²/s)

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

If available, see data below***

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|----------------------|---------|---------------|---------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Standard Draize Test | Rabbit | 500 mg | 4 hours | Skin irritant | ECHA (The European Chemicals Agency) |

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below***

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|---------------|---------------|---------------|---------------|--------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | None reported | None reported | None reported | None reported | Eye irritant | ECHA (The European Chemicals Agency) |

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

If available, see data below.***

Respiratory Sensitization Exposure Route

If available, see data below.***

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route

No data available.

Dermal Exposure Route

No data available.

Inhalation (Dust/Mist) Exposure Route

No data available.

Inhalation (Vapor) Exposure Route

No data available.

Inhalation (Gas) Exposure Route

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route

If available, see data below***

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Carcinogenicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Carcinogenicity Data

| Chemical name | CAS No. | ACGIH | IARC | NTP | OSHA |
|---------------------------|-----------|-------|------|-----|------|
| Sulfuric acid, copper(2+) | 7758-98-7 | - | - | - | - |

| | | | |
|------------|--|--|--|
| salt (1:1) | | | |
|------------|--|--|--|

Legend

| | |
|--|----------------|
| ACGIH (American Conference of Governmental Industrial Hygienists) | Does not apply |
| IARC (International Agency for Research on Cancer) | Does not apply |
| NTP (National Toxicology Program) | Does not apply |
| OSHA (Occupational Safety and Health Administration of the US Department of Labor) | Does not apply |

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

If available, see data below***

| Chemical name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|----------------|------------------|---------------|---------------|---------------------------------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | DNA inhibition | Human lymphocyte | 0.076 mmol/L | None reported | Positive test result for mutagenicity | RTECS (Registry of Toxic Effects of Chemical Substances) |

Product Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below***
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity Harmful to aquatic life with long lasting effects***

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below***

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|----------------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 96 hours | <i>Pimephales promelas</i> | LC ₅₀ | 0.0028 mg/L | Vendor SDS |

Crustacea If available, see ingredient data below***

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|----------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 48 Hours | <i>Daphnia magna</i> | EC ₅₀ | 0.0014 mg/L | Vendor SDS |

Algae If available, see ingredient data below***

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|---------------------------------|------------------|---------------|--|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | 72 Hours | <i>Thalassiosira pseudonana</i> | EC ₅₀ | 0.005 mg/L | ERMA (New Zealand's Environmental Risk Management Authority) |

Other Information

**Canadian Environmental Protection Act (CEPA) - Domestic Substances List (DSL):
Environmentally Hazardous Substances Categorizations**

| Chemical name | Category | Persistent | Bioaccumulation | Inherently Toxic to Aquatic Organisms |
|--|------------|------------|-----------------|---------------------------------------|
| Sulfuric acid, copper(2+) salt (1:1) (<0.01%) CAS#: 7758-98-7 | Inorganics | Yes | No | Yes |

Persistence and degradability

Product Biodegradability Data

No data available.

Ingredient Biodegradability Data

Bioaccumulation

Product Bioaccumulation Data

No data available.

Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Bioaccumulation Data

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

| <u>Water solubility classification</u> | <u>Water solubility</u> | <u>Water Solubility Temperature</u> |
|--|-------------------------|-------------------------------------|
| Soluble | > 1000 mg/L | 25 °C / 77 °F |

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

Transport Canada Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following: UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

Regulatory information

National Inventories

DSL/NDSL Complies

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

TSCA Complies

EINECS/ELINCS Complies

ENCS Complies

IECSC Complies

KECL Complies

PICCS Complies

TCSI Complies

AICS Complies

NZIoC Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
 ENCS - Japan Existing and New Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 TCSI - Taiwan Chemical Substances Inventory
 AICS - Australian Inventory of Chemical Substances
 NZIoC - New Zealand Inventory of Chemicals

Canada - CEPA - Mercury Containing Products

None

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

NFPA and HMIS Classifications

| | | | | |
|-------------|------------------------------|-------------------------|-----------------------------|--|
| NFPA | Health hazards - 0*** | Flammability - 0 | Instability - 0 | Physical and Chemical Properties - |
| HMIS | Health hazards - 0*** | Flammability - 0 | Physical Hazards - 0 | Personal protection - X - See section 8 for more information |

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH *Immediately Dangerous to Life or Health*
 ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
 NDF *no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | |
|------|---------------------------------|---------|---|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| MAC | Maximum Allowable Concentration | Ceiling | Ceiling Limit Value |
| X | Listed | Vacated | These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations. |
| SKN* | Skin designation | SKN+ | Skin sensitization |
| RSP+ | Respiratory sensitization | ** | Hazard Designation |
| C | Carcinogen | R | Reproductive toxicant |
| M | mutagen | | |

Prepared By Hach Product Compliance Department

Issue Date 14-Oct-2016

Revision Date 19-Feb-2018

Revision Note
None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2018

End of Safety Data Sheet

| Date | Week | COD (mg/L) | Volume at waste water treatment entry (m3/day) | pH | Weight of COD (kg/day) |
|------------|------|------------|--|----|------------------------|
| 2020-09-20 | 39 | 1959 | 103.44 | | 203 |
| 2020-09-21 | 39 | 1797 | 127.77 | | 230 |
| 2020-09-22 | 39 | 2061 | 136.85 | | 282 |
| 2020-09-23 | 39 | 3740 | 133.41 | | 499 |
| 2020-09-24 | 39 | 1511 | 100.15 | | 151 |
| 2020-09-25 | 39 | 2557 | 125.86 | | 322 |
| 2020-09-26 | 39 | 2562 | 101.91 | | 261 |
| 2020-09-27 | 40 | 5968 | 103.18 | | 616 |
| 2020-09-28 | 40 | 11567 | 143.55 | | 1660 |
| 2020-09-29 | 40 | 3142 | 111.6 | | 351 |
| 2020-09-30 | 40 | 2132 | 117.04 | | 250 |
| 2020-10-01 | 40 | 4559 | 125.9 | | 574 |
| 2020-10-02 | 40 | 4326 | 100.19 | | 433 |
| 2020-10-03 | 40 | 2320 | 135.76 | | 315 |
| 2020-10-04 | 41 | 2194 | 95.08 | | 209 |
| 2020-10-05 | 41 | 2705 | 153.56 | | 415 |
| 2020-10-06 | 41 | 3376 | 105.9 | | 358 |
| 2020-10-07 | 41 | 2910 | 117.4 | | 342 |
| 2020-10-08 | 41 | 2146 | 124.23 | | 267 |
| 2020-10-09 | 41 | 3386 | 112.1 | | 380 |
| 2020-10-10 | 41 | 3348 | 105.06 | | 352 |
| 2020-10-11 | 42 | 4774 | 125.37 | | 599 |
| 2020-10-12 | 42 | 2665 | 132.5 | | 353 |
| 2020-10-13 | 42 | | | | |
| 2020-10-14 | 42 | | | | |
| 2020-10-15 | 42 | 4811 | 201.09 | | 967 |
| 2020-10-16 | 42 | 2318 | 105.74 | | 245 |
| 2020-10-17 | 42 | 5003 | 143.26 | | 717 |
| 2020-10-18 | 43 | 3135 | 106.12 | | 333 |
| 2020-10-19 | 43 | 2800 | 127.09 | | 356 |
| 2020-10-20 | 43 | 3058 | 131.91 | | 403 |
| 2020-10-21 | 43 | 2879 | 127.61 | | 367 |
| 2020-10-22 | 43 | 1785 | 125.4 | | 224 |
| 2020-10-23 | 43 | 2523 | 135.62 | | 342 |
| 2020-10-24 | 43 | 2418 | 122.25 | | 296 |
| 2020-10-25 | 44 | 2201 | 104.63 | | 230 |
| 2020-10-26 | 44 | 3862 | 132.6 | | 512 |
| 2020-10-27 | 44 | 3317 | 142.73 | | 473 |
| 2020-10-28 | 44 | 2539 | 105.66 | | 268 |
| 2020-10-29 | 44 | 3550 | 129.09 | | 458 |
| 2020-10-30 | 44 | 2741 | 140.93 | | 386 |
| 2020-10-31 | 44 | 3607 | 114.98 | | 415 |
| 2020-11-01 | 45 | 2665 | 113.01 | | 301 |
| 2020-11-02 | 45 | 2056 | 137.54 | | 283 |
| 2020-11-03 | 45 | 3048 | 119.15 | | 363 |
| 2020-11-04 | 45 | 2707 | 127.5 | | 345 |
| 2020-11-05 | 45 | 2251 | 142 | | 320 |
| 2020-11-06 | 45 | 2615 | 126.05 | | 330 |
| 2020-11-07 | 45 | 2678 | 118.59 | | 318 |
| 2020-11-08 | 46 | 2063 | 122.64 | | 253 |
| 2020-11-09 | 46 | 2839 | 134.2 | | 381 |
| 2020-11-10 | 46 | 2481 | 116.23 | | 288 |
| 2020-11-11 | 46 | 2750 | 150.12 | | 413 |
| 2020-11-12 | 46 | 2317 | 122 | | 283 |
| 2020-11-13 | 46 | 3134 | 186.89 | | 586 |
| 2020-11-14 | 46 | 4503 | 101.26 | | 456 |
| 2020-11-15 | 47 | 4232 | 105.8 | | 448 |
| 2020-11-16 | 47 | 2517 | 147.8 | | 372 |
| 2020-11-17 | 47 | 2416 | 112.35 | | 271 |
| 2020-11-18 | 47 | 5859 | 133.29 | | 781 |
| 2020-11-19 | 47 | 4152 | 143.36 | | 595 |
| 2020-11-20 | 47 | 2299 | 154.97 | | 356 |
| 2020-11-21 | 47 | 2416 | 124.6 | | 301 |
| 2020-11-22 | 48 | 1970 | 103.88 | | 205 |

Operator Issues pit pumped out

sampling issues

| | | | | |
|------------|----|-------|--------|------|
| 2020-11-23 | 48 | 2748 | 129.51 | 356 |
| 2020-11-24 | 48 | 2126 | 135.35 | 288 |
| 2020-11-25 | 48 | 4101 | 132.09 | 542 |
| 2020-11-26 | 48 | 2970 | 123.71 | 367 |
| 2020-11-27 | 48 | 3605 | 143.06 | 516 |
| 2020-11-28 | 48 | 2595 | 111.97 | 291 |
| 2020-11-29 | 49 | 2440 | 88.7 | 216 |
| 2020-11-30 | 49 | 2364 | 138.89 | 328 |
| 2020-12-01 | 49 | 2128 | 125.92 | 268 |
| 2020-12-02 | 49 | 3348 | 118.31 | 396 |
| 2020-12-03 | 49 | 2105 | 133.5 | 281 |
| 2020-12-04 | 49 | 1776 | 112.14 | 199 |
| 2020-12-05 | 49 | 1807 | 105.08 | 190 |
| 2020-12-06 | 50 | 1444 | 124.48 | 180 |
| 2020-12-07 | 50 | 2510 | 126.31 | 317 |
| 2020-12-08 | 50 | 2070 | 120.81 | 250 |
| 2020-12-09 | 50 | 1993 | 131.74 | 263 |
| 2020-12-10 | 50 | 2348 | 138.55 | 325 |
| 2020-12-11 | 50 | 2525 | 122.14 | 308 |
| 2020-12-12 | 50 | 2279 | 114.1 | 260 |
| 2020-12-13 | 51 | 2587 | 117.74 | 305 |
| 2020-12-14 | 51 | 2563 | 155.46 | 398 |
| 2020-12-15 | 51 | 2232 | 66.86 | 149 |
| 2020-12-16 | 51 | 12277 | 108.55 | 1333 |
| 2020-12-17 | 51 | 6095 | 131.65 | 802 |
| 2020-12-18 | 51 | 3574 | 152.88 | 546 |
| 2020-12-19 | 51 | 2681 | 106.89 | 287 |
| 2020-12-20 | 52 | 1814 | 117.97 | 214 |
| 2020-12-21 | 52 | 2142 | 152.3 | 326 |
| 2020-12-22 | 52 | 2326 | 122.29 | 284 |
| 2020-12-23 | 52 | 3846 | 172.62 | 664 |
| 2020-12-24 | 52 | 4560 | 167.18 | 762 |
| 2020-12-25 | 52 | 2240 | 112.76 | 253 |
| 2020-12-26 | 52 | 3001 | 145.96 | 438 |
| 2020-12-27 | 53 | 3180 | 170.08 | 541 |
| 2020-12-28 | 53 | 3828 | 128.2 | 491 |
| 2020-12-29 | 53 | 2530 | 161.94 | 410 |
| 2020-12-30 | 53 | 2046 | 144.4 | 295 |
| 2020-12-31 | 53 | 3122 | 144.59 | 451 |
| 2021-01-01 | 1 | 2420 | 123.11 | 298 |
| 2021-01-02 | 1 | 2595 | 136.4 | 354 |
| 2021-01-03 | 1 | 2155 | 156.23 | 337 |
| 2021-01-04 | 1 | 2133 | 142.22 | 303 |
| 2021-01-05 | 1 | 3287 | 109.16 | 359 |
| 2021-01-06 | 1 | 2057 | 148.18 | 305 |
| 2021-01-07 | 1 | 2880 | 119.42 | 344 |
| 2021-01-08 | 1 | 5300 | 141.52 | 750 |
| 2021-01-09 | 1 | 2387 | 130.52 | 312 |
| 2021-01-10 | 2 | 1953 | 106.99 | 209 |
| 2021-01-11 | 2 | 2937 | 131.12 | 385 |
| 2021-01-12 | 2 | 2120 | 155.65 | 330 |
| 2021-01-13 | 2 | 2683 | 118.44 | 318 |
| 2021-01-14 | 2 | 1367 | 147.65 | 202 |
| 2021-01-15 | 2 | 1897 | 154.95 | 294 |
| 2021-01-16 | 2 | 1657 | 108.91 | 180 |
| 2021-01-17 | 3 | 917 | 138.92 | 127 |
| 2021-01-18 | 3 | 1977 | 161.16 | 319 |
| 2021-01-19 | 3 | 1697 | 116.51 | 198 |
| 2021-01-20 | 3 | 1163 | 130.41 | 152 |
| 2021-01-21 | 3 | 1810 | 152.5 | 276 |
| 2021-01-22 | 3 | 1830 | 143.06 | 262 |
| 2021-01-23 | 3 | 1680 | 130.23 | 219 |
| 2021-01-24 | 4 | 767 | 131.93 | 101 |
| 2021-01-25 | 4 | 2620 | 114.39 | 300 |
| 2021-01-26 | 4 | 1287 | 128.99 | 166 |
| 2021-01-27 | 4 | 2860 | 119.06 | 341 |

Operator Issues pit pumped out

| | | | | |
|------------|----|------|--------|-----|
| 2021-01-28 | 4 | 1237 | 131.57 | 163 |
| 2021-01-29 | 4 | 2403 | 148.64 | 357 |
| 2021-01-30 | 4 | 1583 | 123.1 | 195 |
| 2021-01-31 | 5 | 1390 | 115.85 | 161 |
| 2021-02-01 | 5 | 2290 | 140.91 | 323 |
| 2021-02-02 | 5 | 2290 | 114.48 | 262 |
| 2021-02-03 | 5 | 2730 | 129.58 | 354 |
| 2021-02-04 | 5 | 2357 | 137.1 | 323 |
| 2021-02-05 | 5 | 2080 | 123.53 | 257 |
| 2021-02-06 | 5 | 3920 | 126.63 | 496 |
| 2021-02-07 | 6 | 890 | 131.36 | 117 |
| 2021-02-08 | 6 | 1910 | 142.26 | 272 |
| 2021-02-09 | 6 | 2177 | 124.19 | 270 |
| 2021-02-10 | 6 | 4643 | 152.27 | 707 |
| 2021-02-11 | 6 | 2587 | 143.13 | 370 |
| 2021-02-12 | 6 | 1737 | 124.85 | 217 |
| 2021-02-13 | 6 | 1413 | 120.29 | 170 |
| 2021-02-14 | 7 | 2590 | 149.77 | 388 |
| 2021-02-15 | 7 | 4293 | 120.42 | 517 |
| 2021-02-16 | 7 | 4513 | 149.42 | 674 |
| 2021-02-17 | 7 | 1993 | 163.76 | 326 |
| 2021-02-18 | 7 | 1700 | 107.87 | 183 |
| 2021-02-19 | 7 | 2130 | 144.87 | 309 |
| 2021-02-20 | 7 | 1323 | 133 | 176 |
| 2021-02-21 | 8 | 2907 | 133 | 387 |
| 2021-02-22 | 8 | 3767 | 133 | 501 |
| 2021-02-23 | 8 | 3960 | 172.66 | 684 |
| 2021-02-24 | 8 | 5257 | 122.69 | 645 |
| 2021-02-25 | 8 | 2230 | 140.48 | 313 |
| 2021-02-26 | 8 | 3213 | 133.34 | 428 |
| 2021-02-27 | 8 | 2973 | 121.43 | 361 |
| 2021-02-28 | 9 | 2297 | 115.52 | 265 |
| 2021-03-01 | 9 | 4517 | 152.46 | 689 |
| 2021-03-02 | 9 | 4193 | 107.81 | 452 |
| 2021-03-03 | 9 | 2157 | 144.18 | 311 |
| 2021-03-04 | 9 | 1760 | 166.49 | 293 |
| 2021-03-05 | 9 | 2143 | 145.3 | 311 |
| 2021-03-06 | 9 | 3457 | 84.69 | 293 |
| 2021-03-07 | 10 | 3130 | 113.95 | 357 |
| 2021-03-08 | 10 | 3547 | 104.87 | 372 |
| 2021-03-09 | 10 | 2203 | 124.19 | 274 |
| 2021-03-10 | 10 | 3407 | 146.11 | 498 |
| 2021-03-11 | 10 | 6000 | 111.69 | 670 |
| 2021-03-12 | 10 | 2203 | 142.41 | 314 |
| 2021-03-13 | 10 | 4367 | 124.55 | 544 |
| 2021-03-14 | 11 | 1613 | 102.72 | 166 |
| 2021-03-15 | 11 | 2133 | 118.33 | 252 |
| 2021-03-16 | 11 | 4723 | 143.03 | 676 |
| 2021-03-17 | 11 | 3277 | 112.83 | 370 |
| 2021-03-18 | 11 | 4193 | 107.92 | 453 |
| 2021-03-19 | 11 | 3923 | 136.02 | 534 |
| 2021-03-20 | 11 | 2740 | 140.92 | 386 |
| 2021-03-21 | 12 | 3137 | 131.63 | 413 |
| 2021-03-22 | 12 | 2550 | 131.63 | 336 |
| 2021-03-23 | 12 | 4513 | 154.22 | 696 |
| 2021-03-24 | 12 | 6120 | 118.34 | 724 |
| 2021-03-25 | 12 | 4207 | 121.15 | 510 |
| 2021-03-26 | 12 | 3617 | 139.77 | 506 |
| 2021-03-27 | 12 | 4383 | 100.29 | 440 |
| 2021-03-28 | 13 | 1710 | 121.66 | 208 |
| 2021-03-29 | 13 | 2693 | 144.96 | 390 |
| 2021-03-30 | 13 | 5423 | 114.54 | 621 |
| 2021-03-31 | 13 | 2073 | 140.22 | 291 |
| 2021-04-01 | 13 | 6407 | 141.54 | 907 |
| 2021-04-02 | 13 | 2493 | 103.12 | 257 |
| 2021-04-03 | 13 | 4677 | 119.15 | 557 |

| | | | | | | |
|------------|----|------|--------|-------|------|--------------------------------|
| 2021-04-04 | 14 | 2480 | 123.16 | | 305 | |
| 2021-04-05 | 14 | 3073 | 100.31 | | 308 | |
| 2021-04-06 | 14 | 2007 | 124.75 | | 250 | |
| 2021-04-07 | 14 | 3107 | 135.36 | | 421 | |
| 2021-04-08 | 14 | 4213 | 116.96 | | 493 | |
| 2021-04-09 | 14 | 2753 | 120.37 | | 331 | |
| 2021-04-10 | 14 | 2583 | 112.02 | | 289 | |
| 2021-04-11 | 15 | 2540 | 105 | | 267 | |
| 2021-04-12 | 15 | 2390 | 129.56 | | 310 | |
| 2021-04-13 | 15 | 4127 | 147.32 | | 608 | |
| 2021-04-14 | 15 | 3013 | 118.05 | | 356 | |
| 2021-04-15 | 15 | 4463 | 131.57 | | 587 | |
| 2021-04-16 | 15 | 3350 | 140.74 | | 471 | |
| 2021-04-17 | 15 | 2607 | 113.26 | | 295 | |
| 2021-04-18 | 16 | 3693 | 149.26 | | 551 | |
| 2021-04-19 | 16 | 2740 | 184.33 | | 505 | |
| 2021-04-20 | 16 | 2460 | 171.31 | | 421 | |
| 2021-04-21 | 16 | 2587 | 199.18 | | 515 | |
| 2021-04-22 | 16 | 1763 | 165.16 | | 291 | |
| 2021-04-23 | 16 | 1910 | 164.73 | | 315 | |
| 2021-04-24 | 16 | 1703 | 122.55 | | 209 | |
| 2021-04-25 | 17 | 2280 | 108.37 | | 247 | |
| 2021-04-26 | 17 | 2123 | 142 | | 302 | |
| 2021-04-27 | 17 | 3213 | 130.85 | | 420 | |
| 2021-04-28 | 17 | 3400 | 112.06 | | 381 | |
| 2021-04-29 | 17 | 3850 | 155.06 | | 597 | |
| 2021-04-30 | 17 | 0 | 14.98 | | | Plant shutdown |
| 2021-05-01 | 17 | 0 | 7.8 | | | Plant shutdown |
| 2021-05-02 | 18 | 0 | 5.12 | | | Plant shutdown |
| 2021-05-03 | 18 | 0 | 34.4 | | | Plant shutdown |
| 2021-05-04 | 18 | 2517 | 124.01 | | 312 | |
| 2021-05-05 | 18 | 3237 | 114.76 | | 371 | |
| 2021-05-06 | 18 | 4893 | 115.81 | | 567 | |
| 2021-05-07 | 18 | 2347 | 155.31 | | 364 | |
| 2021-05-08 | 18 | 2833 | 99.31 | | 281 | |
| 2021-05-09 | 19 | 1553 | 130.41 | | 203 | |
| 2021-05-10 | 19 | 2527 | 135.35 | | 342 | |
| 2021-05-11 | 19 | 2793 | 100.68 | | 281 | |
| 2021-05-12 | 19 | 2097 | 164.3 | | 344 | |
| 2021-05-13 | 19 | 2857 | 134.8 | | 385 | |
| 2021-05-14 | 19 | 3663 | 120.58 | | 442 | |
| 2021-05-15 | 19 | 1907 | 161.92 | | 309 | |
| 2021-05-16 | 20 | 3133 | 156.93 | | 492 | |
| 2021-05-17 | 20 | 2300 | 186.56 | | 429 | |
| 2021-05-18 | 20 | 2407 | 142.03 | | 342 | |
| 2021-05-19 | 20 | 2133 | 198.88 | | 424 | |
| 2021-05-20 | 20 | 2430 | 135.39 | | 329 | |
| 2021-05-21 | 20 | 5523 | 171.61 | | 948 | |
| 2021-05-22 | 20 | 3087 | 150.67 | | 465 | |
| 2021-05-23 | 21 | 2623 | 108.54 | | 285 | |
| 2021-05-24 | 21 | 2723 | 113.45 | | 309 | |
| 2021-05-25 | 21 | 7160 | 140.48 | | 1006 | Operator Issues pit pumped out |
| 2021-05-26 | 21 | 3097 | 123.18 | | 381 | |
| 2021-05-27 | 21 | 2880 | 134.71 | | 388 | |
| 2021-05-28 | 21 | 2733 | 141.27 | | 386 | |
| 2021-05-29 | 21 | 2477 | 140.54 | | 348 | |
| 2021-05-30 | 22 | 2817 | 142.51 | | 401 | |
| 2021-05-31 | 22 | 2863 | 119.61 | 11.53 | 342 | |
| 2021-06-01 | 22 | 4070 | 107.37 | 10.83 | 437 | |
| 2021-06-02 | 22 | 2117 | 128.7 | 10.91 | 272 | |
| 2021-06-03 | 22 | 2963 | 147.01 | 10.6 | 436 | |
| 2021-06-04 | 22 | 2390 | 151.24 | 11.05 | 361 | |
| 2021-06-05 | 22 | 1753 | 94.43 | 11.35 | 166 | |
| 2021-06-06 | 23 | 1417 | 28.83 | 10.43 | 41 | |
| 2021-06-07 | 23 | 2640 | 90.26 | 8.93 | 238 | |
| 2021-06-08 | 23 | 2297 | 144.17 | 11.52 | 331 | |

| | | | | | |
|------------|----|------|--------|-------|------|
| 2021-06-09 | 23 | 3020 | 109.41 | 11.23 | 330 |
| 2021-06-10 | 23 | 5090 | 128.08 | 10.77 | 652 |
| 2021-06-11 | 23 | 7267 | 109.2 | 11.25 | 794 |
| 2021-06-12 | 23 | 3117 | 113.49 | 10.79 | 354 |
| 2021-06-13 | 24 | 1907 | 111.71 | 10.91 | 213 |
| 2021-06-14 | 24 | 3193 | 115.44 | 11.83 | 369 |
| 2021-06-15 | 24 | 2387 | 105.22 | 11.36 | 251 |
| 2021-06-16 | 24 | 5590 | 129.9 | 11.34 | 726 |
| 2021-06-17 | 24 | 2150 | 122.98 | 11.02 | 264 |
| 2021-06-18 | 24 | 1960 | 115.25 | 10.52 | 226 |
| 2021-06-19 | 24 | 2483 | 122.5 | 11.68 | 304 |
| 2021-06-20 | 25 | 8917 | 117.72 | 11.54 | 1050 |
| 2021-06-21 | 25 | 2757 | 116.04 | 10.58 | 320 |
| 2021-06-22 | 25 | 3147 | 140.85 | 11.28 | 443 |
| 2021-06-23 | 25 | 5687 | 123.5 | 11.79 | 702 |
| 2021-06-24 | 25 | 3160 | 126.15 | 10.76 | 399 |
| 2021-06-25 | 25 | 3427 | 137.2 | 11.7 | 470 |
| 2021-06-26 | 25 | 1997 | 130.98 | 11.4 | 262 |
| 2021-06-27 | 26 | 3177 | 101.81 | 11.14 | 323 |
| 2021-06-28 | 26 | 2163 | 131.72 | 11.41 | 285 |
| 2021-06-29 | 26 | 2947 | 139.2 | 11.43 | 410 |
| 2021-06-30 | 26 | 3653 | 101.02 | 11.33 | 369 |
| 2021-07-01 | 26 | 5080 | 132.21 | 10.89 | 672 |
| 2021-07-02 | 26 | 3753 | 120.44 | 10.9 | 452 |
| 2021-07-03 | 26 | 2987 | 107.49 | 10.1 | 321 |
| 2021-07-04 | 27 | 3053 | 123.06 | 11.34 | 376 |
| 2021-07-05 | 27 | 3670 | 128.62 | 11.27 | 472 |
| 2021-07-06 | 27 | 3440 | 127.98 | 10.89 | 440 |
| 2021-07-07 | 27 | 2737 | 145.63 | 11.6 | 399 |
| 2021-07-08 | 27 | 3127 | 114.37 | 11.39 | 358 |
| 2021-07-09 | 27 | 1873 | 109.87 | 9.41 | 206 |
| 2021-07-10 | 27 | 1957 | 114.76 | 11.35 | 225 |
| 2021-07-11 | 28 | 2087 | 95.1 | 11.1 | 198 |
| 2021-07-12 | 28 | 2303 | 123.66 | 11.18 | 285 |
| 2021-07-13 | 28 | 2057 | 131.05 | 11.44 | 270 |
| 2021-07-14 | 28 | 2793 | 104.14 | 11.04 | 291 |
| 2021-07-15 | 28 | 2877 | 118.03 | 10.52 | 340 |
| 2021-07-16 | 28 | 3117 | 124.68 | 11.37 | 389 |
| 2021-07-17 | 28 | 3590 | 98.76 | 11.54 | 355 |
| 2021-07-18 | 29 | 3503 | 147.47 | 10.76 | 517 |
| 2021-07-19 | 29 | 3450 | 146.12 | 10.97 | 504 |
| 2021-07-20 | 29 | 2693 | 134.38 | 11.59 | 362 |
| 2021-07-21 | 29 | 2800 | 144.09 | 11.29 | 403 |
| 2021-07-22 | 29 | 3663 | 148.59 | 11.26 | 544 |
| 2021-07-23 | 29 | 2890 | 148.19 | 11.31 | 428 |
| 2021-07-24 | 29 | 2897 | 118.87 | 11.74 | 344 |
| 2021-07-25 | 30 | 2493 | 134.03 | 10.85 | 334 |
| 2021-07-26 | 30 | 3440 | 137.03 | 11.28 | 471 |
| 2021-07-27 | 30 | 3533 | 120.4 | 11.29 | 425 |
| 2021-07-28 | 30 | 3493 | 124.4 | 10.53 | 435 |
| 2021-07-29 | 30 | 3130 | 142.38 | 11.32 | 446 |
| 2021-07-30 | 30 | 2623 | 125.2 | 10.66 | 328 |
| 2021-07-31 | 30 | 4847 | 98.69 | 11.2 | 478 |
| 2021-08-01 | 31 | 3450 | 120.01 | 11.19 | 414 |
| 2021-08-02 | 31 | 3327 | 132.61 | 10.5 | 441 |
| 2021-08-03 | 31 | 3563 | 157.44 | 11.26 | 561 |
| 2021-08-04 | 31 | 2627 | 143.15 | 11.49 | 376 |
| 2021-08-05 | 31 | 2483 | 118.7 | 10.52 | 295 |
| 2021-08-06 | 31 | 2790 | 136.88 | 11.96 | 382 |
| 2021-08-07 | 31 | 3113 | 126.32 | 11.37 | 393 |
| 2021-08-08 | 32 | 3100 | 77.46 | 10.22 | 240 |
| 2021-08-09 | 32 | 2610 | 153.77 | 10.96 | 401 |
| 2021-08-10 | 32 | 3340 | 106.62 | 11.36 | 356 |
| 2021-08-11 | 32 | 2903 | 146.99 | 11.3 | 427 |
| 2021-08-12 | 32 | 4257 | 133.45 | 11.28 | 568 |
| 2021-08-13 | 32 | 3080 | 124.05 | 10.28 | 382 |

Operator Issues pit pumped out

| | | | | | |
|------------|----|------|--------|-------|------|
| 2021-08-14 | 32 | 2573 | 119 | 9.67 | 306 |
| 2021-08-15 | 33 | 4327 | 100.33 | 10.39 | 434 |
| 2021-08-16 | 33 | 3117 | 131.59 | 10.88 | 410 |
| 2021-08-17 | 33 | 2883 | 144.39 | 11.2 | 416 |
| 2021-08-18 | 33 | 3010 | 114.27 | 11.4 | 344 |
| 2021-08-19 | 33 | 2973 | 121.17 | 10.01 | 360 |
| 2021-08-20 | 33 | 3283 | 133.09 | 11.1 | 437 |
| 2021-08-21 | 33 | 3567 | 111.12 | 11.28 | 396 |
| 2021-08-22 | 34 | 3017 | 109.88 | 11.33 | 331 |
| 2021-08-23 | 34 | 3610 | 147.05 | 11.52 | 531 |
| 2021-08-24 | 34 | 3177 | 118.61 | 11.48 | 377 |
| 2021-08-25 | 34 | 2373 | 132.52 | 11.01 | 315 |
| 2021-08-26 | 34 | 3283 | 138.28 | 11.72 | 454 |
| 2021-08-27 | 34 | 2647 | 110.18 | 11.1 | 292 |
| 2021-08-28 | 34 | 5270 | 68.76 | 10.77 | 362 |
| 2021-08-29 | 36 | 3473 | 161 | 11.4 | 559 |
| 2021-08-30 | 36 | 4157 | 145.75 | 11.58 | 606 |
| 2021-08-31 | 36 | 5727 | 126.25 | 11.66 | 723 |
| 2021-09-01 | 36 | 6277 | 120.07 | 11.76 | 754 |
| 2021-09-02 | 36 | 6797 | 148.4 | 11.5 | 1009 |
| 2021-09-03 | 36 | 4110 | 115.86 | 11.59 | 476 |
| 2021-09-04 | 36 | 5193 | 136.35 | 10.05 | 708 |
| 2021-09-05 | 37 | 4123 | 127.62 | 11.16 | 526 |
| 2021-09-06 | 37 | 5170 | 99.81 | 11.53 | 516 |
| 2021-09-07 | 37 | 5107 | 120.75 | 11.45 | 617 |
| 2021-09-08 | 37 | 4500 | 132.54 | 11.74 | 596 |
| 2021-09-09 | 37 | 4243 | 113.54 | 11.38 | 482 |
| 2021-09-10 | 37 | 3020 | 149.18 | 11.36 | 451 |
| 2021-09-11 | 37 | 3227 | 110.45 | 11.14 | 356 |
| 2021-09-12 | 38 | 1810 | 192.91 | 9.81 | 349 |
| 2021-09-13 | 38 | 3723 | 123.69 | 11.42 | 461 |
| 2021-09-14 | 38 | 3360 | 141.81 | 11.51 | 476 |
| 2021-09-15 | 38 | 8290 | 106.5 | 11.26 | 883 |
| 2021-09-16 | 38 | 2463 | 138.28 | 11.67 | 341 |
| 2021-09-17 | 38 | 2463 | 137.56 | 11.76 | 339 |
| 2021-09-18 | 38 | 2540 | 105.82 | 11.91 | 269 |
| 2021-09-19 | 39 | 3203 | 115.09 | 11.18 | 369 |
| 2021-09-20 | 39 | 3683 | 133.47 | 11.17 | 492 |
| 2021-09-21 | 39 | 2893 | 111.49 | 11.66 | 323 |
| 2021-09-22 | 39 | 1830 | 121.97 | 11.06 | 223 |
| 2021-09-23 | 39 | 4000 | 135.49 | 11.39 | 542 |
| 2021-09-24 | 39 | 4307 | 121.16 | 11.62 | 522 |
| 2021-09-25 | 39 | 3073 | 123.75 | 10.82 | 380 |
| 2021-09-26 | 40 | 3583 | 134.21 | 11.32 | 481 |
| 2021-09-27 | 40 | 2277 | 123.51 | 11.65 | 281 |
| 2021-09-28 | 40 | 2150 | 124.34 | 11.37 | 267 |
| 2021-09-29 | 40 | 3287 | 143.24 | 11.64 | 471 |
| 2021-09-30 | 40 | 2780 | 129.12 | 11.59 | 359 |
| 2021-10-01 | 40 | 2810 | 127.13 | 10.9 | 357 |
| 2021-10-02 | 40 | 2730 | 139.77 | 11.72 | 382 |
| 2021-10-03 | 41 | 5443 | 111.13 | 11.61 | 605 |
| 2021-10-04 | 41 | 5540 | 127.52 | 11.42 | 706 |
| 2021-10-05 | 41 | 4710 | 134.04 | 11.57 | 631 |
| 2021-10-06 | 41 | 3147 | 116.06 | 11.53 | 365 |
| 2021-10-07 | 41 | 3943 | 134.88 | 10.97 | 532 |
| 2021-10-08 | 41 | 2650 | 150.83 | 10.72 | 400 |
| 2021-10-09 | 41 | 2043 | 136.02 | 11.28 | 278 |
| 2021-10-10 | 42 | 3433 | 133.97 | 10.35 | 460 |
| 2021-10-11 | 42 | 3173 | 149.66 | 11.48 | 475 |
| 2021-10-12 | 42 | 3283 | 118.69 | 11.31 | 390 |
| 2021-10-13 | 42 | 2660 | 144.31 | 11.28 | 384 |
| 2021-10-14 | 42 | 2663 | 148.18 | 11.4 | 395 |
| 2021-10-15 | 42 | 3787 | 117.49 | 11.47 | 445 |
| 2021-10-16 | 42 | 4013 | 131.67 | 11.42 | 528 |
| 2021-10-17 | 43 | 2820 | 127.56 | 11.31 | 360 |
| 2021-10-18 | 43 | 3243 | 129.72 | 11.69 | 421 |

Operator Issues pit pumped out

| | | | | | |
|------------|----|------|--------|-------|------|
| 2021-10-19 | 43 | 2630 | 143.56 | 11.15 | 378 |
| 2021-10-20 | 43 | 3157 | 156.06 | 11.47 | 493 |
| 2021-10-21 | 43 | 6413 | 151.1 | 11.23 | 969 |
| 2021-10-22 | 43 | 8953 | 131.43 | 11.42 | 1177 |
| 2021-10-23 | 43 | 2483 | 144.78 | 10.6 | 359 |
| 2021-10-24 | 44 | 2270 | 128.46 | 11.05 | 292 |
| 2021-10-25 | 44 | 2143 | 135.28 | 11.14 | 290 |
| 2021-10-26 | 44 | 1463 | 76.7 | 11.68 | 112 |
| 2021-10-27 | 44 | 7480 | 147.11 | 11.8 | 1100 |
| 2021-10-28 | 44 | 5507 | 119.67 | 11.2 | 659 |
| 2021-10-29 | 44 | 3707 | 121.61 | 11.5 | 451 |
| 2021-10-30 | 44 | 4917 | 146.36 | 11.73 | 720 |
| 2021-10-31 | 45 | 2517 | 146.92 | 11.52 | 370 |
| 2021-11-01 | 45 | 3667 | 117.3 | 11.91 | 430 |
| 2021-11-02 | 45 | 2650 | 146.44 | 11.12 | 388 |
| 2021-11-03 | 45 | 3747 | 145.6 | 11.52 | 546 |
| 2021-11-04 | 45 | 3897 | 112.65 | 11.61 | 439 |
| 2021-11-05 | 45 | 2213 | 139.28 | 10.41 | 308 |
| 2021-11-06 | 45 | 8417 | 118.08 | 10.94 | 994 |
| 2021-11-07 | 46 | 2347 | 135.35 | 11.01 | 318 |
| 2021-11-08 | 46 | 2573 | 137.88 | 10.67 | 355 |
| 2021-11-09 | 46 | 3427 | 134.54 | 11.57 | 461 |
| 2021-11-10 | 46 | 3047 | 124.41 | 10.71 | 379 |
| 2021-11-11 | 46 | 2147 | 149.29 | 9.8 | 320 |
| 2021-11-12 | 46 | 2427 | 121.25 | 11.59 | 294 |
| 2021-11-13 | 46 | 5290 | 150.26 | 11.71 | 795 |
| 2021-11-14 | 47 | 1900 | 140.4 | 10.85 | 267 |
| 2021-11-15 | 47 | 4327 | 138.7 | 10.54 | 600 |
| 2021-11-16 | 47 | 3087 | 106.78 | 11.73 | 330 |
| 2021-11-17 | 47 | 2313 | 143.79 | 11.57 | 333 |
| 2021-11-18 | 47 | 2993 | 120.28 | 11.44 | 360 |
| 2021-11-19 | 47 | 2717 | 141.56 | 11.4 | 385 |
| 2021-11-20 | 47 | 2180 | 151.22 | 11.43 | 330 |
| 2021-11-21 | 48 | 2063 | 160.1 | 10.96 | 330 |
| 2021-11-22 | 48 | 3240 | 157.7 | 11.37 | 511 |
| 2021-11-23 | 48 | 2847 | 125.13 | 11.53 | 356 |
| 2021-11-24 | 48 | 3487 | 132.72 | 11.23 | 463 |
| 2021-11-25 | 48 | 5783 | 162.09 | 11.16 | 937 |
| 2021-11-26 | 48 | 4723 | 137.11 | 11.53 | 648 |
| 2021-11-27 | 48 | 3423 | 127.98 | 11.32 | 438 |
| 2021-11-28 | 49 | 7200 | 152.66 | 11.54 | 1099 |
| | | | | | |
| | | | | | |



Atli Eyvindson <aeyvindson@scvconsultingltd.com>

File 182.10 Lactalis St. Claude EAP Application - Additional Info Request

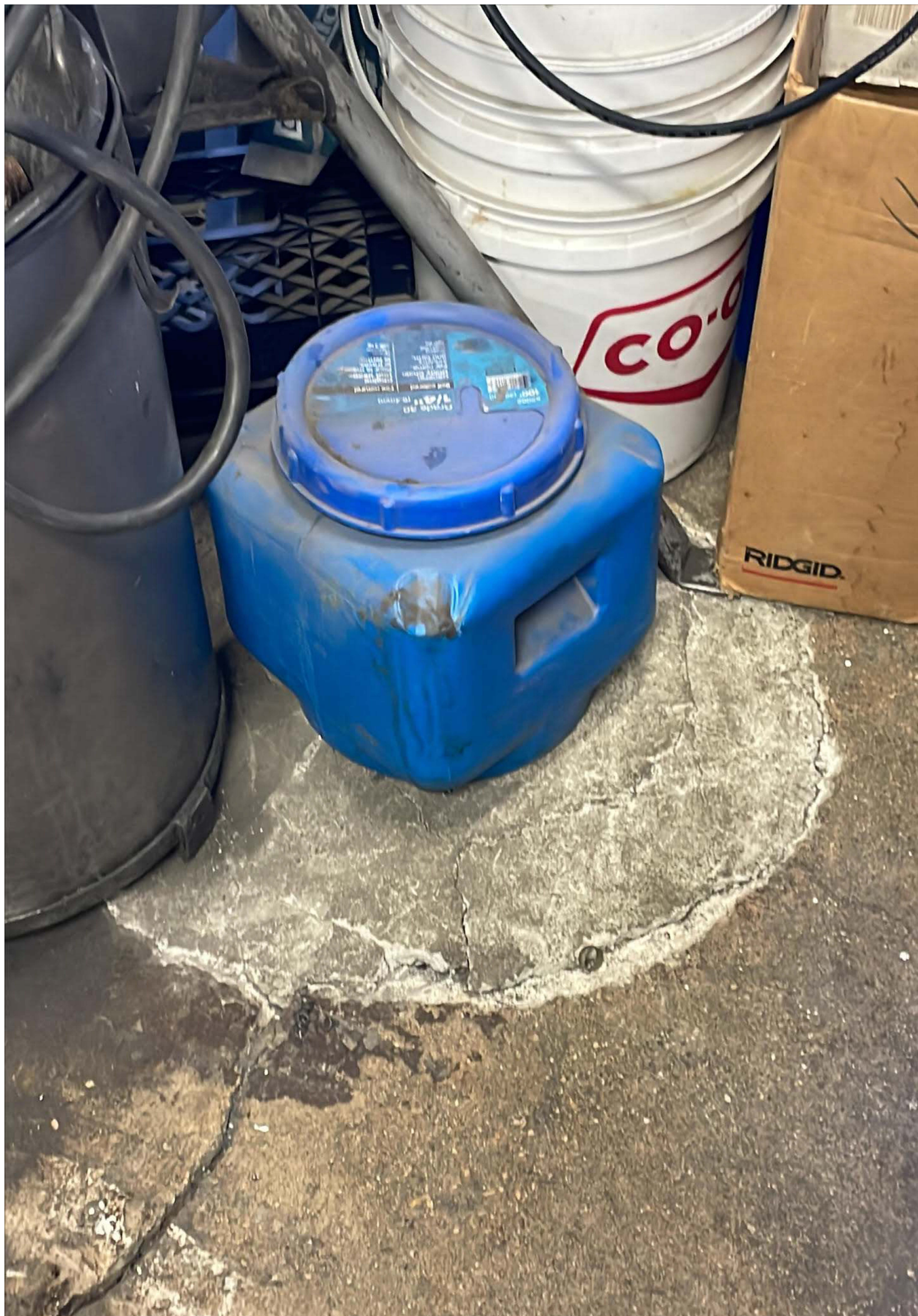
CLARK Adam <Adam.CLARK@ca.lactalis.com>

17 February 2022 at 10:12

To: Kevin Poirier <kpoirier@scvconsultingltd.com>, PROSKURNIAK Andy <Andy.PROSKURNIAK@ca.lactalis.com>

Cc: LENEVEU Anthony <anthony.leneveu@ca.lactalis.com>, FAY Richard <Richard.FAY@ca.lactalis.com>, Atli Eyvindson <aeyvindson@scvconsultingltd.com>

Entrance is aprox 75m





Adam Clark
Maintenance Manager
Lactalis Canada | [9 Provincial road 240 south](#) | St Claude, Manitoba |R0G 1Z0
P: (204) 379-2571 ext. 222 | M: (204) 871-4880 | Adam.clark@ca.lactalis.com

From: Kevin Poirier <kpoirier@scvconsultingltd.com>

Sent: Friday, February 11, 2022 11:16:36 AM

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