# Seattle Galvanizing Company, Inc.

# Notice of Construction Application for Order of Approval
## for
## Spin Hot-Dip Galvanizing Line
## at
## 18520 67th Avenue NE, Arlington, Washington

This Notice of Construction Application for Order of Approval submittal consists of several documents, listed below:

A. Notice of Construction Application for Order of Approval (Form 50-125P)
B. NOC Application Supplemental Forms
    a. BAGHOUSES AND CARTRIDGE-TYPE DUST COLLECTORS
C. Project Description and Process Flow Diagrams
D. Vendor and Manufacturer Information
E. Emissions Calculations Summary and Safety Data Sheets
F. State Environmental Policy Act (SEPA) Checklist

Questions or requests for additional information can be directed to:


**Marie E. Piper**

Cascade Environmental Management

316 SE Pioneer Way, #294

Oak Harbor, WA 98277

(360) 672-0088

MarieatCascade@gmail.com

**Hadi Mirzai**

Seattle Galvanizing Company, Inc.

19603 60th Ave NE

Arlington, WA 98223

(206) 783-3100 EXT 104

hadi@seattlegalvanizing.com


**Date submitted to Puget Sound Clean Air Agency: January 10, 2024**

CASCADE ENVIRONMENTAL MANAGEMENT

# Appendix A

## Notice of Construction Application for Order of Approval (Form 50-125P)

CASCADE ENVIRONMENTAL MANAGEMENT

| AGENCY USE ONLY | NOC#: | REG#: | Date Fee Pd: | Eng. Assigned: |
|---|---|---|---|---|
| | 12427 | 30473 | 1/12/24 | |

PUGET SOUND
Clean Air Agency

1904 3rd Ave #105, Seattle, WA 98101
206-343-8800
pscleanair.gov

# NOTICE OF CONSTRUCTION APPLICATION FOR ORDER OF APPROVAL

The following information must be submitted as part of this application packet before an Agency engineer is assigned to review your project.

## SECTION 1. FACILITY INFORMATION

| | | | |
|---|---|---|---|
| Business Name: Seattle Galvanizing Company, Inc. | | | |
| Equipment Installation Address: 18520 67th Avenue NE | City: Arlington | State: WA | Zip: 98223 |
| Is the business registered with the Agency at this equipment installation address? Yes. Current Registration or AOP No. _____ X No, not registered Unknown | | | |
| Business Owner Name: Seattle Galvanizing Company, Inc. | | | |
| Business Mailing Address: 18520 67th Avenue NE | City: Arlington | State: WA | Zip: 98223 |
| Type of Business: Hot-dip galvanizing: bonding (alloying) of zinc onto fabricated iron or steel by the immersion of the iron or steel into molten zinc. | | | |
| Is the installation address located within the city limits? X Yes No | | | |
| NAICS Code: 332812 | NAICS Description: Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturer | | |
| Contact Name (for this application): Hadi Mirzai | Phone: 206-783-3100 | Email: hadi@seattlegalvanizing.com | |

**Description for Agency Website**

Provide a 1-2 sentence simple description of this project. See examples www.pscleanair.gov/176

Construction of a new hot-dip spin galvanizing facility including a small parts hot-dip galvanizing tank line and baghouse for pollution control.

## SECTION 2: REQUIRED APPLICATION PACKET ATTACHMENTS

1) **Process flow diagram**
   X YES, attached. NO, not attached. This application is incomplete

2) **Emission estimate.** Emission rate increases for all pollutants.
   X YES, attached. NO, not attached. This application is incomplete.

3) **Environmental Checklist** (or a determination made by another Agency under the State Environmental Policy Act) www.pscleanair.gov/DocumentCenter/View/170
   X YES, attached. NO, not attached. This application is incomplete.



Form 50-125P | 05/21

NOTICE OF CONSTRUCTION APPLICATION FOR ORDER OF APPROVAL

**SECTION 2: REQUIRED APPLICATION PACKET ATTACHMENTS (CONT)**

4) Attach **equipment form**(s) applicable to your operation. Forms are available online at www.pscleanair.gov/179

X YES, attached. NO, not attached. This application is incomplete.

5) **Detailed Project Description**

The project description must include a detailed description of the project, a list of process and control equipment to be installed or modified, a description of how the proposed project will impact your existing operations (if applicable), and measures that will be taken to minimize air emissions.

Detailed description of the proposed project included in packet?

X YES, attached. NO, not attached. This application is incomplete.

6) **$3,000 filing fee** (nonrefundable)

PAY BY CHECK – Attached and made payable to **Puget Sound Clean Air Agency**

PAY BY CREDIT – Accounting technician will contact person identified below for payment information

| Contact Name: | Contact Number: |
|---|---|
| Nazani Mirzai | (206) 783-3100 ext 103 |

**SECTION 3: PROCESS AND CONTROL EQUIPMENT** (attach additional pages if necessary)

| Process Equipment | | Does this equipment have air pollution control equipment? | Air Pollution Control Equipment | |
|---|---|---|---|---|
| # of Units | Equipment Type & Design Capacity | | # of Units | Equipment Type |
| 1 | Hot-Dip Spin Galvanizing Line | X Yes No | 1 | Baghouse |
| | | Yes No | | |
| | | Yes No | | |
| | | Yes No | | |

**SECTION 4: CERTIFICATION STATEMENT**

*I, the undersigned, certify that the information contained in this application and the accompanying forms, plans, specifications, and supplemental data described herein is, to the best of my knowledge, accurate and complete.*

| Signature | Date |
|---|---|
| Hadi Mirzai | President |
| Printed Name | Title |

**SECTION 5: APPLICATION SUBMITTAL**

**EMAIL application and attachments to:**

NOC@pscleanair.gov

-OR-

**MAIL application, payment, and attachments to:**

Puget Sound Clean Air Agency
ATTN: NOC Application Submittal
1904 3rd Ave, Suite 105 - Seattle, WA 98101

# Appendix B

## NOC Application Supplemental Forms

## BAGHOUSES AND CARTRIDGE-TYPE DUST COLLECTORS

CASCADE
ENVIRONMENTAL
MANAGEMENT

PUGET SOUND
Clean Air Agency

1904 3rd Ave #105, Seattle, WA 98101
206-343-8800
pscleanair.gov

# NOC APPLICATION SUPPLEMENTAL FORM

## Baghouse, Cartridge-Type Dust Collector, and Fabric Filter

This baghouse or cartridge-type dust collector is:

- ☒ New (including existing, unpermitted equipment)
- ☐ A replacement of an existing baghouse or cartridge-type dust collector
- ☐ A substantial alteration of an existing baghouse or cartridge-type dust collector
- ☐ Relocation

Specify the source of the particulate matter being controlled: Hot-dip zinc galvanizing

Hours of operation per day: 24 Hours of operation per year: 8760

## Inlet Gas Stream Characteristics

Inlet Flowrate (acfm): 10,000

Inlet Particulate Concentration (gr/dscf): varies

Temperature Range of Inlet Gas Stream (°F): 75 - 140

Moisture Range of Inlet Gas Stream (%): <50%

## Outlet Gas Stream Characteristics

Outlet Flowrate (acfm): 10,000

Outlet Particulate Concentration (gr/dscf): <0.005

Temperature Range of Outlet Gas Stream (°F): 70 - 135

Moisture Range of Outlet Gas Stream (%): <50%

## Design Specifications

Make: US Air Filtration Inc Model: 1313PT-96-6

Filter Fabric Material: Polyester

Filter Cleaning Method:

- ☐ Mechanically shaken
- ☐ Manually shaken
- ☐ Reverse air
- ☒ Pulse-jet
- ☐ Other: _____

Air to Cloth Ratio (acfm/ft2): 4.7:1

Baghouse Fan Configuration

- ☐ Induced draft
- ☒ Forced draft
- ☐ Other: _____

## Stack Parameters

Exhaust stack parameters (Leave blank for non-ventilated spray areas):

Stack diameter (inches): 27 Stack height above ground (feet): 41'-2"

Building Dimensions of project location:

Building Height (highest point of roof) (feet): 31'-2"

Building Width (feet): 152 Building Length (feet) 240

Stack damper/rain guard:

☐ None ☐ Hexagonal ☒ Stack within stack ☐ Butterfly ☐ Inverted Cone

☐ Other (specify): _____

# Appendix C

## Project Description and Process Flow Diagrams

CASCADE ENVIRONMENTAL MANAGEMENT

**Introduction**

Seattle Galvanizing Company, Inc. is proposing a small parts spin galvanizing line to be located within an industrial building located at 18520 67th Avenue NE, Arlington, Washington. The project site is approximately 2.5 acres in size and is currently zoned General Industrial and is located within the Cascade Industrial Center. The parcel is located to the West of 67th Avenue NE and south of 188th Street NE. There are train tracks on the west side of the property with the Baxter pole facility located west of the tracks. Other industrial facilities are located to the north and south. A residential neighborhood is located to the east. The proposed facility will occupy roughly half of the interior of the existing building. The remaining area will be used for storage.

An aerial view of the site and a site vicinity map are provided below:


VICINITY MAP

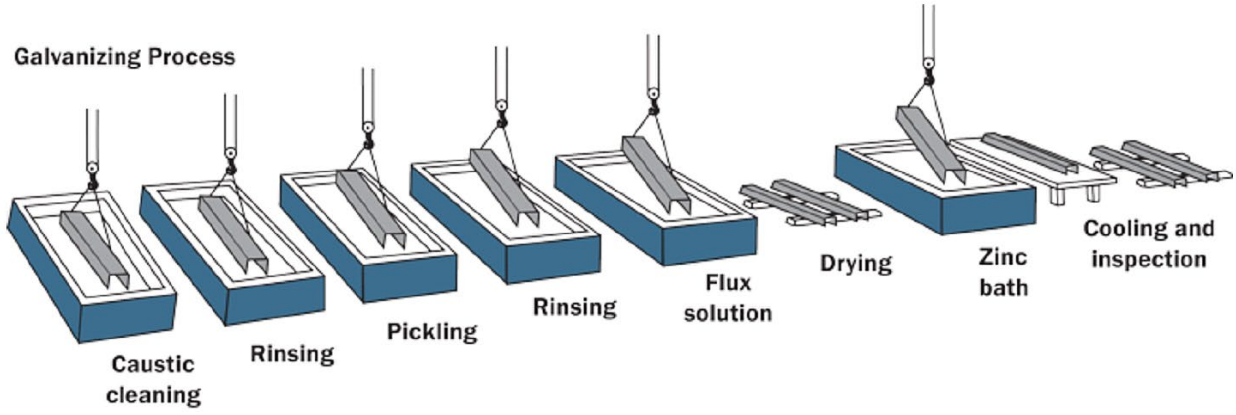
NORTH

**Process**

Spin galvanizing is a hot-dip process that utilizes a centrifuge anchored by the galvanizing kettle for immersing small to medium scale components into molten zinc. A tightly bonded alloy coating forms on the steel, providing long-term, durable protection from corrosion, while the centrifuge removes excess molten zinc to ensure coating uniformity, quality fit, and precises functionality.

A 2 MMBTU/hr natural gas-fired heater will provide heat for the process. A 10,000 CFM baghouse will provide particulate matter control for the hot-dip tank. Appendix D has vendor information on the baghouse.

An overview of the galvanizing process is provided below:




1. Caustic Cleaning
Material is immersed in a heated caustic solution to remove grease, dirt, oil, and water-based paints. This process will also remove any contaminants that cannot be removed by normal chemical cleaners (ie. welding slag, splatter, lacquer, and oil-based paints).

2. Caustic Rinse
Material is immersed in fresh water to remove any excess chemicals.

3. Acid Pickling
Material is immersed in a diluted Hydrochloric Acid solution to remove all rust, mill scale, and any other surface contaminant.

4. Acid Rinse
Material is immersed in fresh water to remove any excess acid and iron salts.

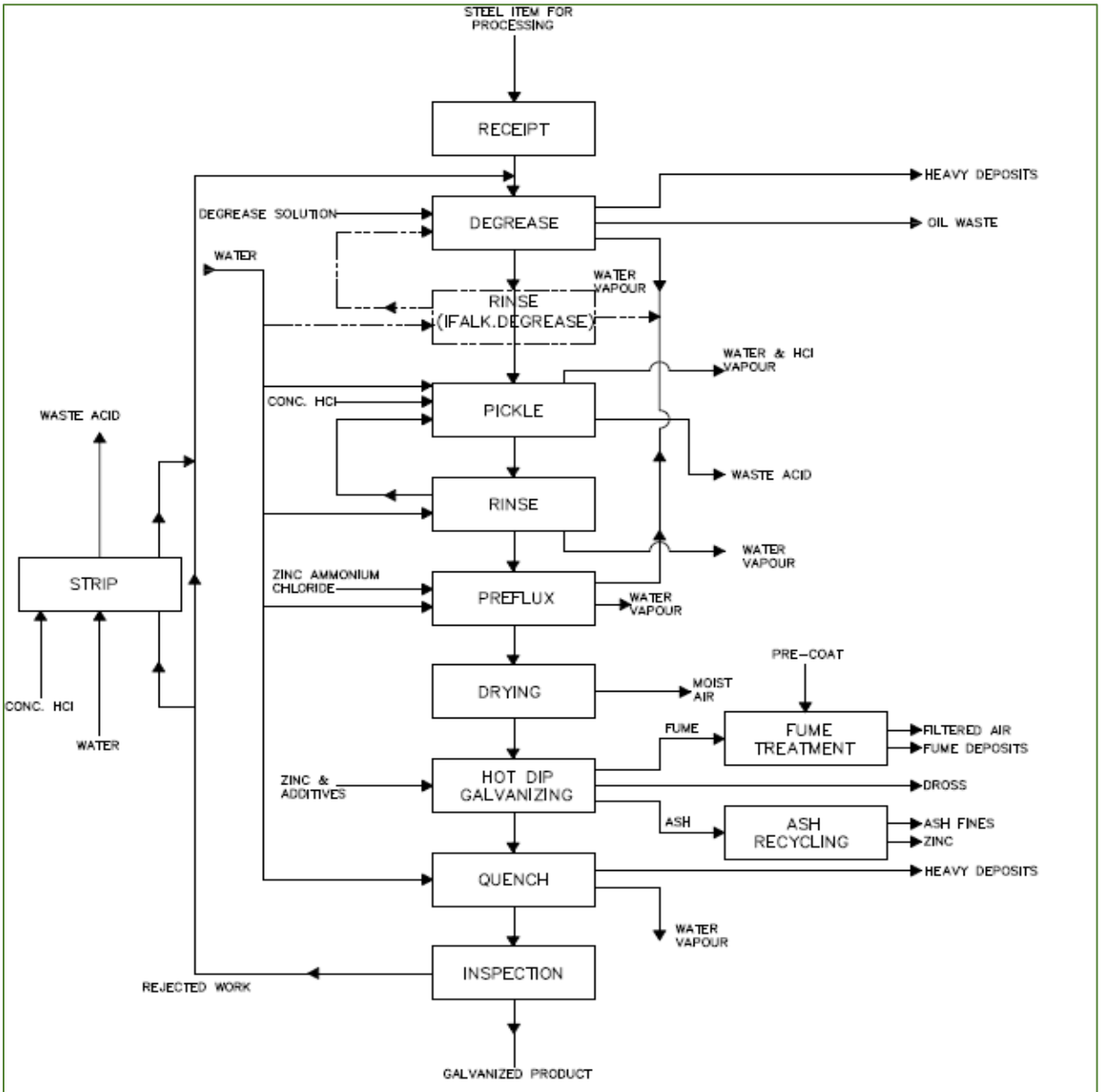
5. Fluxing
Material is immersed in a heated aqueous Zinc-Ammonium Chloride solution. This process will remove any remaining impurities, moisture, and oxide film from the steel. Flux acts as a bonding agent to the molten zinc.

6. Drying
Material is placed in a holding area for a certain amount of time. This will ensure the Flux is airdried and best prepared before entering the molten zinc.

7. Galvanizing
Material is immersed in a molten zinc mixture. Molten zinc is heated to 840°F. Material will be removed from the zinc mixture when the coating thickness meets and exceeds relevant ASTM standards.

8. Inspection
Material is inspected for any imperfections and is tested by American Galvanizer Association certified inspectors to ensure compliance with ASTM standards.

A materials process flow diagram is provided below:



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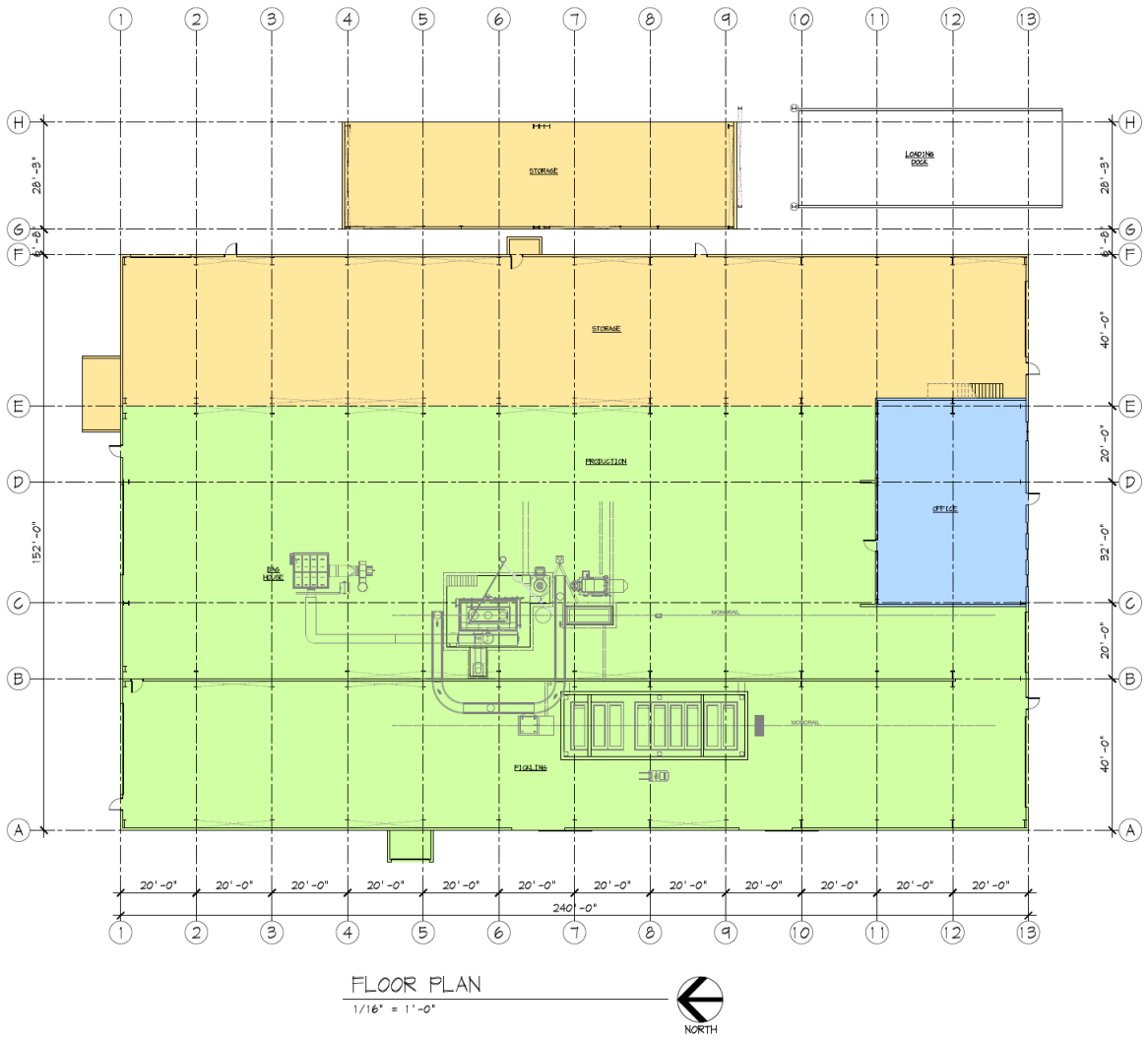
Fax: (918)712-9850
email: tech@westechgalv.com

GALVANIZING MATERIAL FLOW DIAGRAM

| DWN. | CSM | MAR 11 | REV. | | | APPR. | | SCALE | JOB NO. | DWG. NO. | REV. NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CHK. | | | CHK. | | | BY | | N.T.S. | | | 1 |

The proposed facility layout is shown below:




The nine tanks shown prior to the galvanizing kettle area are:

1. Caustic soda
2. Rinse water
3. HCl
4. HCl
5. HCl
6. HCl
7. Rinse water
8. Rinse water
9. Zinc ammonium chloride

A more detailed facility layout is provided in Appendix D.

The facility expects to operate 24 hours per day, 5 days per week, along with some occasional weekends. Production capacity is approximately 1 ton per hour maximum.

**Emissions**

Primary emissions of concern are particulate matter from the fluxing agents used in dip galvanizing kettle. Other emissions include small quantities of hydrochloric acid from the pickling tanks. Another potential toxic air pollutant (TAP) used in the process is sodium hydroxide (caustic) that is used in the degreasing/cleaning tank. However, as caustic does not have a vapor pressure value, emissions from the tank are expected be near zero and well below the Small Quantity Emission Rate (SQER) for sodium hydroxide.

Particulate matter emissions from the galvanizing kettle are proposed to be controlled with A 10,000 CFM baghouse with a minimum of 99% control efficiency.

Hydrochloric acid emissions are based on worst-case assumptions of the tank being open and emitting 8,760 hours per year.

Appendix E contains the emissions calculations. Particulate matter emissions are calculated to be less than 0.028 lb/hr and 0.124 tons per year. Worst-case hydrochloric acid emissions are calculated to be less than 0.026 lb/day, less than the SQER of 0.67 lb/day.

Safety Data Sheets are also provided in Appendix E.

# Appendix D

# Vendor and Manufacturer Information

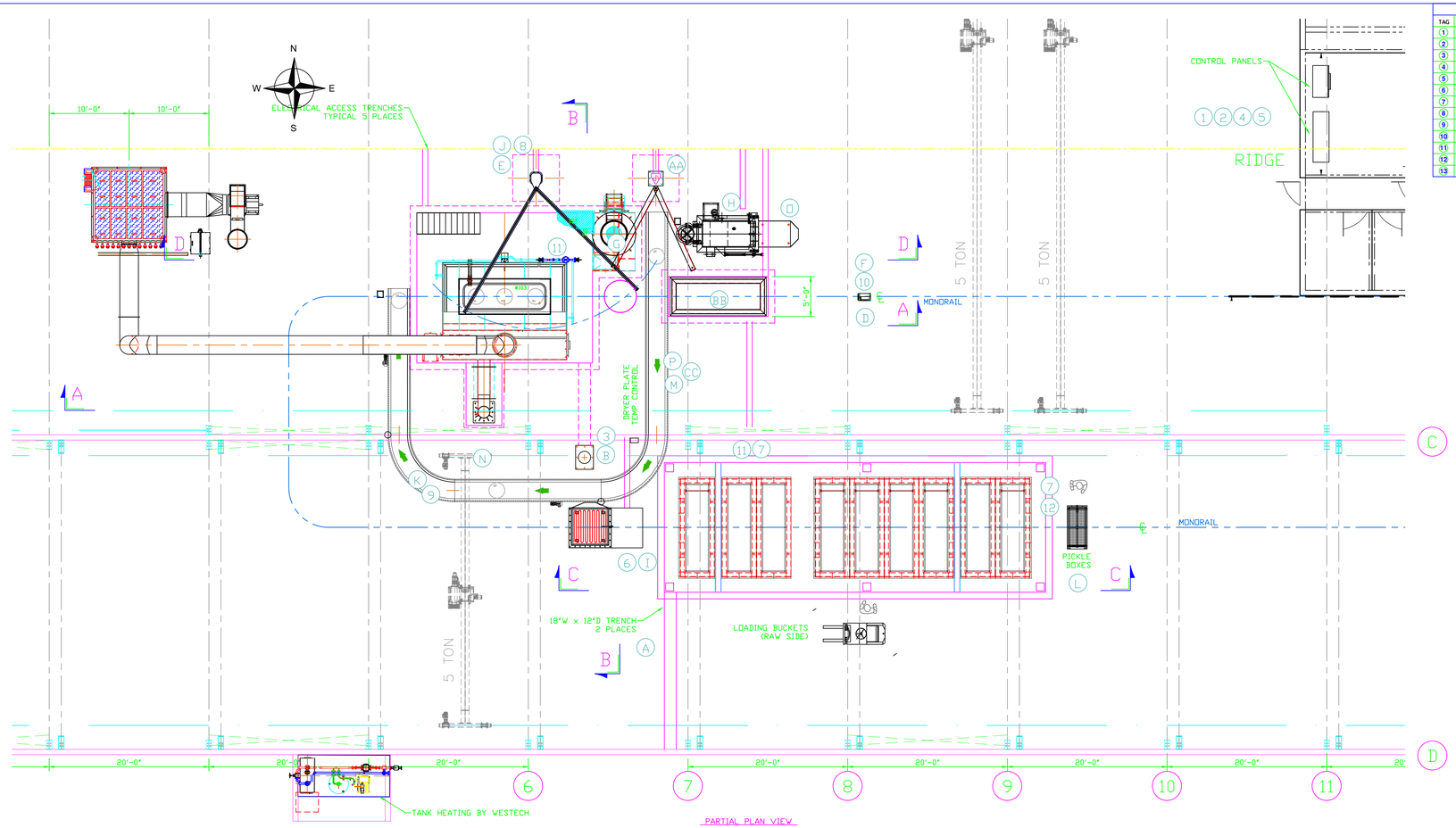
CASCADE
ENVIRONMENTAL
MANAGEMENT

| REQUIREMENTS FOR CUSTOMER SUPPLY | | |
|---|---|---|
| TAG | LOCATION | DESCRIPTION |
| 1 | FURNACE PANEL | 25 FLA 480V, 3ph, 60Hz |
| 2 | BAG FILTER | 125 FLA 460V, 3Ph, 60Hz ??? |
| 3 | PIT VENTILATION FAN | 12 FLA 480V, 3ph, 60Hz |
| 4 | CENTRIFUGE | 65 FLA 480V, 3ph, 60Hz |
| 5 | TIPPER/QUENCH | 10 FLA 480V, 3ph, 60Hz |
| 6 | DRYING TABLE | 30 FLA 480V, 3ph, 60Hz |
| 7 | TANK HEATING (BY CLIENT) | 100 FLA 480V, 3ph, 60Hz ??? |
| 8 | JIB CRANE | 7 FLA 480V, 3ph, 60Hz |
| 9 | BUCKET RETURN CONVEYOR | 10 FLA 480V, 3ph, 60Hz |
| 10 | CHAIN HOISTS | 30 FLA 480V, 3ph, 60Hz |
| 11 | GAS FROM MAINS | FLOW 30 Scfm MAX 5 PSI/MIN 2 PSI |
| 12 | TANK FILL WATER | FILL ONLY |
| 13 | COMPRESSED AIR TO BAG FILTER | FLOW 60 CFM @ 90 PSI MIN |

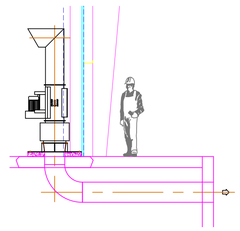
| | | |
|---|---|---|
| A | **Plant Design and Drawings** | 4689 |
| B | **Ventilation Fan for Furnace Pit:** | 4690 |
| C | **White Fume Bag Filter – 10,000 cfm with control:** | 4691 |
| D | **(5) 1-Ton Capacity 2-speed Chain Hoists:** | 4692 |
| E | **(1) 1-Ton Capacity High Speed Chain Hoist:** | 4693 |
| F | ***Monorail Bussbar and Pick-up Arms:*** | 4694 |
| G | **Westech Pit-mount Centrifuge – 24" diameter:** | 4695 |
| H | **Westech Automatic Bucket Tipper / Quench:** | 4696 |
| I | **Westech Electrically Heated Dryer Plate:** | 4697 |
| J | **(1) ¼ ton Rotating Jib Crane:** | 4698 |
| K | **(1) Empty Bucket Return Conveyor:** | 4699 |
| L | **(5) Copolymer Polypropylene Pickling Boxes:** | 4700 |
| M | **(8) Perforated Carbon Steel Centrifuge Buckets:** | 4701 |
| N | **Design & Drawings for Exhaust Duct, Chimney:** | 4702 |
| O | **Drawing for Sorting/Inspection Table:** | 4703 |
| P | **Drawing for Standard Centrifuge Buckets:** | 4704 |
| Q | **Design & Drawings for White Fume Ducting, Chimney:** | 4705 |

**Additional Equipment for Spin-a Batch**

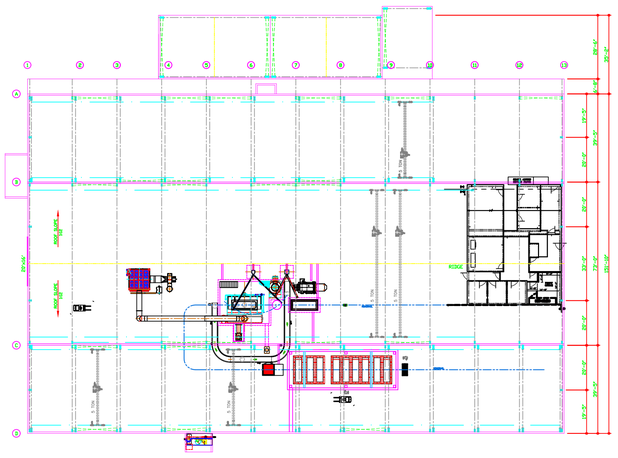
| | |
|---|---|
| AA | **(1) ¼ ton Rotating Jib Crane:** |
| BB | **Drawing for Steel Quench Tank** |
| CC | **Extensions for Bucket Return Conveyor** |



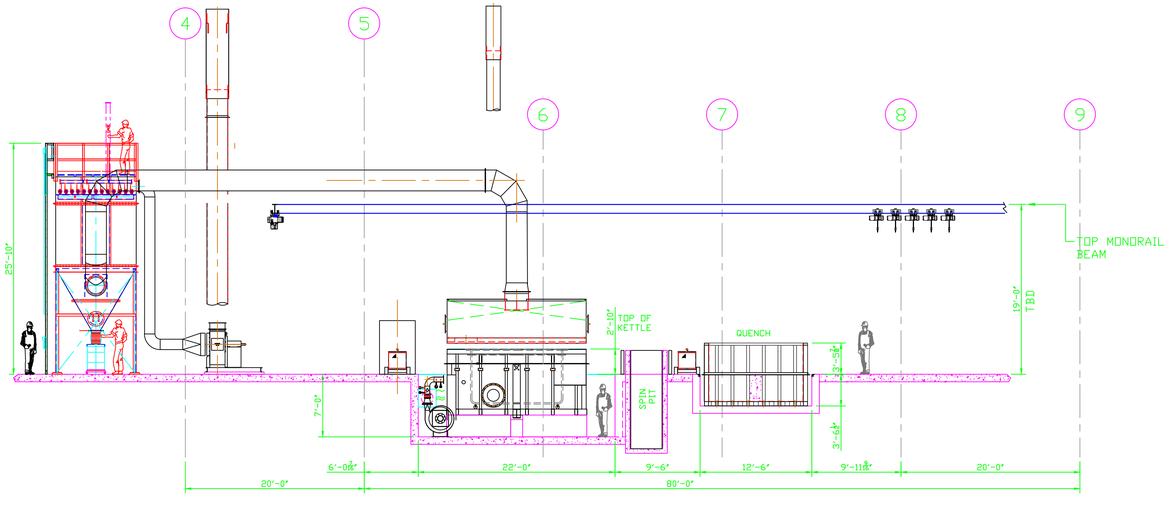

PARTIAL PLAN VIEW



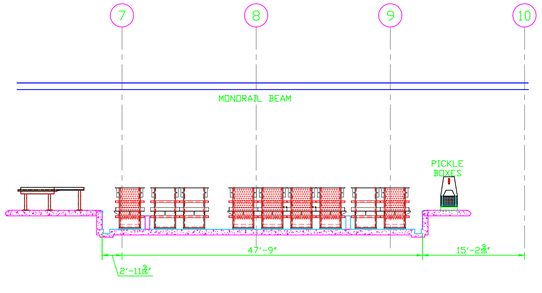
PIT VENTILATION DETAIL
SCALE 3/16" = 1'-0"



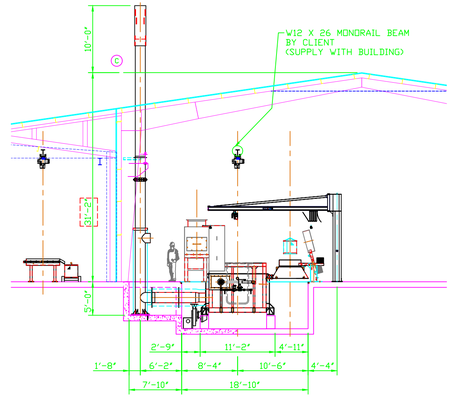
FULL SIZE PLAN




SECTION A-A




SECTION C-C




SECTION B-B

REF: 4257 QTF

DENOTES DIMENSION TO BE CONFIRMED.

| COPIES ISSUED | DATE | SENT TO | REMARKS |
|---|---|---|---|
| | AUG/4/23 | CLIENT | REV 9 NEW BUILDING |
| | NOV/2/23 | CLIENT | REV 10 NEW BUILDING LAYOUT |
| | NOV/7/23 | CLIENT | REV 11 |
| | NOV/21/23 | CLIENT | REV 12 REVIEW & COMMENTS |
| | NOV/28/23 | CLIENT | REV 13 REVIEW & COMMENTS |

| | | |
|---|---|---|
| DWN | TLT | DEC/20/23 |
| CHK | JDH | JAN/13/22 |
| APPR | | |
| SCALE | 1/8"=1'-0" | |

| REVISIONS | | |
|---|---|---|
| | BUILDING SIZE | MAY/26/22 JDH |
| | NEW BUILDING (SEACON) | JUL/26/22 JDH |
| 1 | REVISED LAYOUT | OCT/31/23 WG |
| 1 | PER CLIENT MARKUP | NOV/7/23 WG |
| 2 | CLIENT BUILDING | NOV/20/23 JDH |
| 3 | ADD MONORAIL LOOP, DUCT ROUTING | NOV/27/23 JDH |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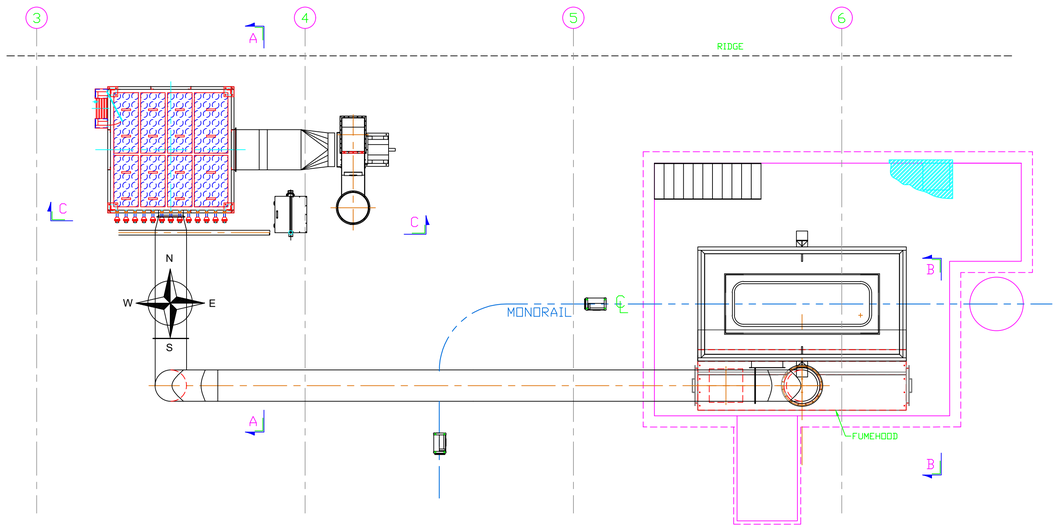
4404 South Maybelle Avenue
Tulsa, Oklahoma, USA 74107
Phone:(918)712-2406
Fax:(918)712-9850

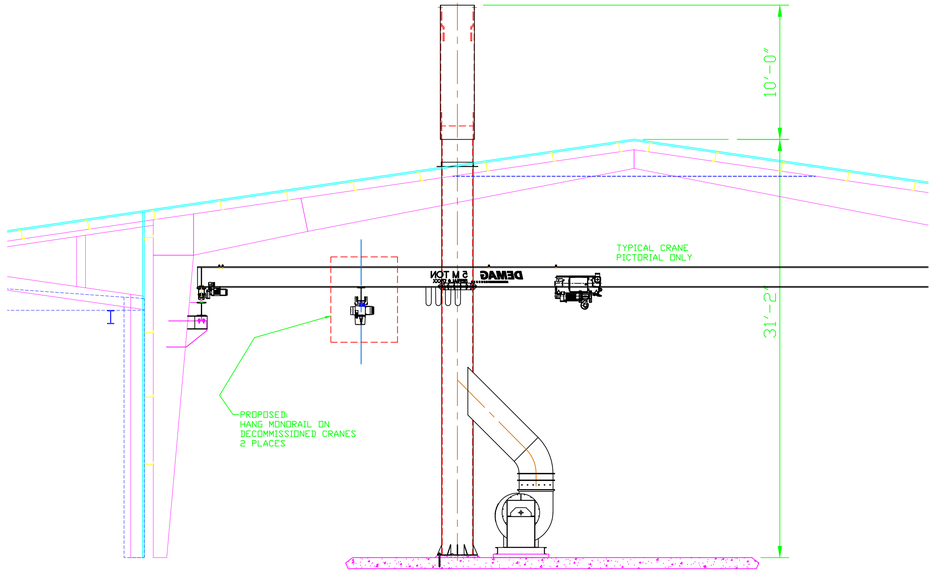

WESTECH WESTERN TECHNOLOGIES

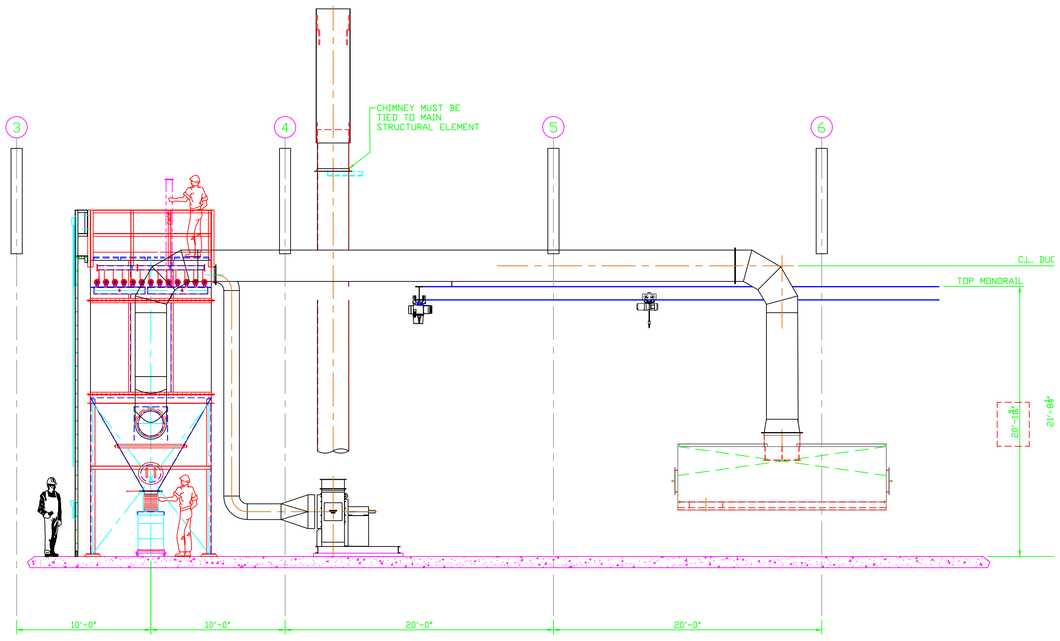


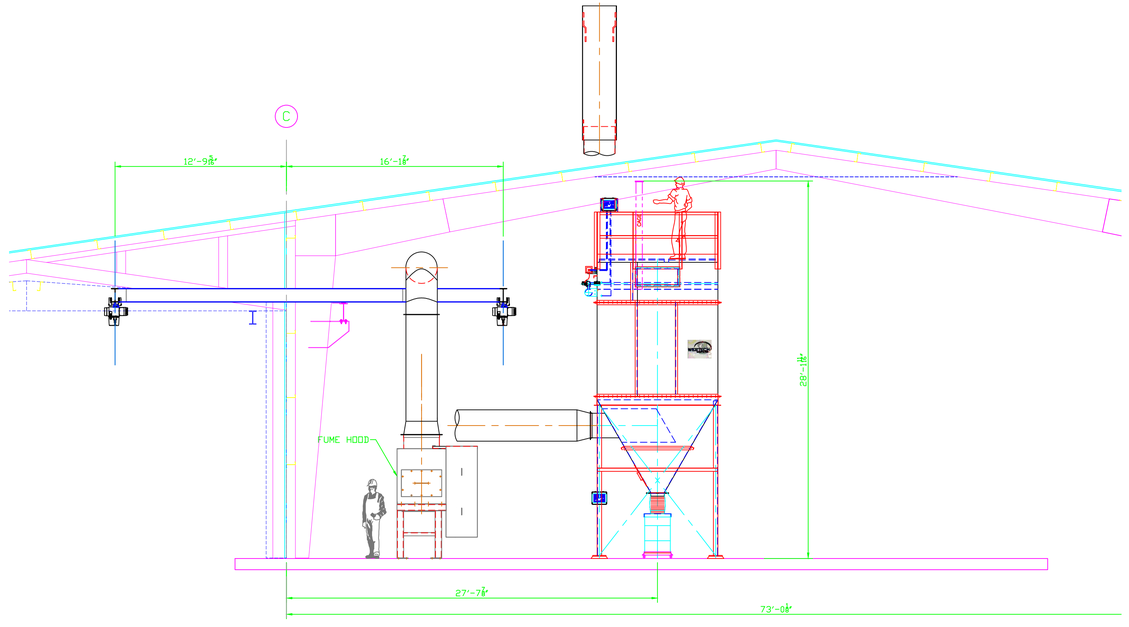
DETAILS:
PLANT LAYOUT
SEATTLE GALVANIZING

| JOB NO. | DWG NO. | REV NO. |
|---|---|---|
| 4689 | JS-4689-1m | 13 |




REF: Template

| COPIES ISSUED | DATE | SENT TO | REMARKS |
|---|---|---|---|
| | MAR/14/22 | U.S. AIR FILTRATION | CHANGED LOCATION |
| | APR/28/22 | CLIENT | REV 1 PRELIMINARY |
| | MAY/17/22 | CLIENT | REV 2 |
| | NOV/21/23 | CLIENT | REV 3 |
| | NOV/28/23 | CLIENT | REV 4 |

| | | |
|---|---|---|
| DWN | TLT | FEB/14/22 |
| CHK | | |
| APPR | | |
| | | |
| SCALE | N.T.S. | |

| REVISIONS | | |
|---|---|---|
| 1 | PER SEACON BUILDING APR/26/22 | MAR/14/22 JDH |
| 2 | BUILDING SIZE, AS FINAL | MAY/11/22 TLT |
| 3 | NEW BUILDING | NOV/20/23 JDH |
| 4 | GENERAL | NOV/27/23 JDH |

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Fax:(918)712-9850

WESTECH WESTERN TECHNOLOGIES



DETAILS:
BAGHOUSE LAYOUT
SEATTLE GALV

| JOB NO. | DWG NO. | REV NO. |
|---|---|---|
| 4705 | JS-4705-1d | 4 |

WESTERN TECHNOLOGIES, INC
4404 South Maybelle Avenue e-mail: sales@westechgalv.com
Tulsa, OK, USA 74107 http: www.westechgalv.com
Phone: (918) 712-2406 FAX: (918) 712-9850

23rd March 2022

**Seattle Galvanizers**
**Spin Plant Pollution Control rev1**

1. The galvanizing fume extraction system for fume generated on the surface of the molten zinc is in the form of elevated peripheral (lip) fume extraction. The moth of the fume extraction slot has evolved of decades to efficient capture fume and the mouth of the slot is designed for optimal extraction velocity.

   The rate of extraction has also evolved over decades of design. The only standard for peripheral fume extraction from galvanizing kettle is a German standard VDV 2579 and this standard requires an extraction rate of 3,500 $m^3/m^2/hr.$ of kettle surface area. This equates to an extraction rate of approximately 5,800 C.F.M. From years of experience we have determined that 1,000 C.F.M. per foot of kettle length for kettles under 5'-0" wide to be more efficacious. We have proposed an extraction rate of 10,000 C.F.M.

2. Seattle Galv to supply information for chemicals used in the process.
3. There are no solvent cleaners used in the process to the best of our knowledge.
4. The only fuel burning piece of equipment in the plant is a galvanizing furnace. The furnace is a 2-burner high velocity furnace reference 3366. It has a thermal input of 2,000,000 BTU/hr. and uses natural gas.
5. Baghouse:
   a. Air Filtration Pulse Jet Dust Collector
   b. Model #1313PT-96-6
   c. Galvanizing Fume Filtration
   d. 10,000 CFM
6. Seattle Galv to supply information.

**DATA SHEET**

## Typical Galvanizing Fume Analysis

Size Range 30%<1µm
70%<2µm
90%<4µm

Particulate Weight Range 20 to 70 mg/m³

Typical Composition (Dry Galvanizing):

| | |
|---|---|
| $ZnCl_2$ | 3.6% |
| ZnO | 15.8% |
| Zn | 4.9% |
| $NH_4Cl$ | 68.0% |
| $NH_3$ | 1.0% |
| Oil | 1.4% (dependent upon efficiency of degrease) |
| Carbon | 2.8% |

The weight of particulate removed by the bag filter will vary greatly depending upon the flux used and the surface area of work being galvanized. However a general guide used in the U.S., assuming 6% zinc usage would be 150g/tonne of steel galvanized. General composition as follows:

| | |
|---|---|
| Ammonium Chloride | 68.0% |
| Zinc Oxide | 16.0% |
| Zinc | 5.0% |
| Zinc Chloride | 3.5% |
| Carbon, Water, Oil and Ammonia (combined) | 7.5% |

# Appendix E

## Emissions Calculations Summary and Safety Data Sheets

CASCADE ENVIRONMENTAL MANAGEMENT

**Hydrochloric (HCl) Acid Tank Table**

| **HCl Pickle Tanks** | **4** |
|---|---|
| A = Surface area of tank (ft2) | 33 |
| T = Operating temperature (C°) | 15.6 |
| Conc. = Percent concentration of HCl by weight (%w/w) | 15% |
| V = Air velocity across surface of tank (fps) | 1 |
| Pv = Vapor pressure of HCl (mmHg from the table in the Appendix) | 0.020 |
| E = Evaporation rate from tank (lb/hr-ft2) | 0.00016 |
| ER1 = Emission rate uncontrolled (lb/hr) | 0.0218 |
| FE = Suppressant efficiency 1 - (%)/100 | 0 |
| CE = Hood capture efficiency (%) | 0 |
| AE = Abatement device efficiency 1 - (%)/100 | 0 |
| ER4 = Emission rate controlled (lb/hr) | 0.0218 |
| FUG = Fugitive emissions (lb/hr) | 0.010881 |
| OY = Annual operating hours | 8760 |
| AFUG = Annual HCl fugitive emission rate (tons/year) | 0.048 |
| AER = Annual HCl emission rate (tons/year) | N/A |

**Supplementary Information**

**Table 2a**

| **HCl Pickle Tanks** | |
|---|---|
| ER1 (enter into Table 2) (lbs/hr) | 0.0218 |
| ER2 (lbs/hr) | 0.0218 |
| ER3 (lbs/hr) | 0.0218 |
| (ER2 - ER3) (lbs/hr) | |
| ER4 (enter into Table 2) (lbs/hr) | |

| | |
|---|---|
| HCL (lbs/day) | 0.26 |
| HCL SQER (24-hr) (CAS 7647-01-0) | 0.67 |

**Galvanizing/Kettle Uncontrolled Emissions**

| **Galvanizing Facility Parameters** | |
|---|---|
| HP = Maximum Hourly Production in Pounds/Hour of Galvanized Product (lbs/hr) | 1846 |
| AP = Maximum Annual Production in Tons/Year of Galvanized Product (tpy) | 8086 |
| AH = Maximum Annual Operating Hours Per Year (hrs/yr) | 8760 |
| EF = Zinc Kettle Emission Factor (lbs/ton)[4] | 0.52 |
| EH = Hourly Uncontrolled PM10 Emissions (lbs/hr)* | 0.5 |
| EA = Annual Uncontrolled PM10 Emissions (tpy)** | 2.1 |

**Galvanizing/Zinc Kettle Controlled Emissions**

| **Galvanizing Facility Parameters** | |
|---|---|
| EH = (See Previous Table) (lbs/hr) | 0.5 |
| EA = (See Previous Table) (tpy) | 2.1 |
| CE = Kettle Hood Capture Efficiency (%) | 95 |
| AE = Control Device Efficiency (%) | 99 |
| EHC = Hourly Controlled PM10 Emissions (lbs/hr)* | 0.005 |
| EAC = Annual Controlled PM10 Emissions (tpy)** | 0.020 |
| FH = Hourly Fugitive PM10 Emissions (lbs/hr)*** | 0.024 |
| FA = Annual Fugitive PM10 Emissions (tpy)**** | 0.104 |

| | |
|---|---|
| Total PM10 (lbs/hr), controlled | 0.028 |
| Total PM10 (tpy), controlled | 0.124 |

**VII. Speciated Zinc Kettle**

(a) Hourly Controlled

| **Contaminant** | | **Percentage in Decimal** | | lb/hr |
|---|---|---|---|---|
| $PM_{10}$ | = | 1.00 | › | 0.0283 |
| $NH_4Cl$ | = | 0.68 | › | 0.0193 |
| ZnO | = | 0.16 | › | 0.0045 |
| $ZnCl_2$ | = | 0.04 | › | 0.0011 |
| Zn | = | 0.05 | › | 0.0014 |
| $NH_3$ | = | 0.01 | › | 0.0003 |

**References**


1. National Emission Standards for Hazardous Air Pollutants (NESHAP) for Steel P
   Proposed Standards
   Appendix E, 1997
2. "Emissions from Open Tanks" model for HCl pickling process developed by Mr. N
   available on the Esco Engineering website
3. "Heat Losses from Tanks, Vats, and Kettles," Friedman, S.J., Heating and Ventil
4. Emissions from Hot-Dip Galvanizing Processes Final Report EPA – 905/4-76-00


**FROM: Texas Commission on Environmental Quality**
**Calculations Guidance Package**
**Hot Dip Galvanizing**

# Ammonium Chloride Granular
Safety Data Sheet

## SECTION 1: Identification

### 1.1. Product identifier

Product name : Ammonium Chloride Granular (G, C Grades)

### 1.2. Recommended use and restrictions on use

Manufacturing

### 1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

### 1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

## SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture

**GHS-US/CAN Classification**

Acute toxicity (oral) Category 4 H302
Serious eye damage/eye irritation Category 2A H319

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS-US/CAN labeling**

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 - Harmful if swallowed
H319 - Causes serious eye irritation

Precautionary statements : P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330 - Rinse mouth
P337+P313 - If eye irritation persists: Get medical advice/attention
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS-CA)

No data available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | % | GHS-CAN classification | GHS-US classification |
|---|---|---|---|---|
| Ammonium chloride | (CAS No) 12125-02-9 | 99.5-100 | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Comb. Dust | Acute Tox. 4 (Oral), H302<br>Eye Irrit. 2, H319<br>Comb. Dust |

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : Immediately wash the affected area with plenty of soap and water for a minimum of 15 minutes. Remove any contaminated clothing. Get immediate medical attention. Redness and sores may develop if contaminated area was not attended to immediately or improper washing was not thorough.

First-aid measures after eye contact : Flush eyes immediately with copious amounts of water for at least 15 minutes. Keep eyelids apart while irrigating the eyes. Get medical attention immediately.

First-aid measures after ingestion : Do not induce vomiting. Give large quantities of water or milk. Call a physician. Never give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Inhalation of excessive concentrations of vapor, fumes, and/or dust produces irritation of the upper respiratory tract resulting in coughing, excessive spitting and choking sensation. Reactions in humans have usually been limited to mild irritation or inflammation of the nose and throat.

Symptoms/injuries after skin contact : Ammonium chloride may cause skin irritation, or dermatitis on skin exposed for prolonged periods.

Symptoms/injuries after eye contact : Ammonium Chloride, including vapor, can cause irritation and inflammation of the eyes. Permanent damage to the eye can occur if substance is not immediately flushed from the eye.

Symptoms/injuries after ingestion : May be harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Water, water fog, carbon dioxide (CO2), dry chemical.

Unsuitable extinguishing media : None.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : Fumes of nitrogen oxides, hydrogen chloride and possibly ammonia gas may be evolved during a fire.

Explosion hazard : None known.

### 5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

No additional information available

#### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Sweep up and recycle into process if contamination does not present a problem. Use appropriate protective equipment if dust is generated or contact with eyes or skin is expected. Flush residues and liquid to holding area for neutralization before discharge.

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation/exhaustion at the workplace. Avoid dust generation. Avoid contact with skin and eyes. Do not allow product to enter sewage system or water bodies.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly sealed and in the original container.

### 7.3. Specific end use(s)

Manufacturing

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Ammonium chloride (12125-02-9)** | | |
|---|---|---|
| USA - ACGIH | ACGIH TWA (mg/m³) | 10 mg/m³ (fume) |
| USA - ACGIH | ACGIH STEL (mg/m³) | 20 mg/m³ (fume) |
| Canada (Quebec) | VECD (mg/m³) | 20 mg/m³ (fume) |
| Canada (Quebec) | VEMP (mg/m³) | 10 mg/m³ (fume) |
| Alberta | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Alberta | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| British Columbia | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| British Columbia | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Manitoba | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Manitoba | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| New Brunswick | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| New Brunswick | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| New Foundland & Labrador | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| New Foundland & Labrador | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Nova Scotia | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Nova Scotia | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Nunavut | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Nunavut | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Northwest Territories | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Northwest Territories | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Ontario | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Ontario | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Prince Edward Island | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Prince Edward Island | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Saskatchewan | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Saskatchewan | OEL TWA (mg/m³) | 10 mg/m³ (fume) |
| Yukon | OEL STEL (mg/m³) | 20 mg/m³ (fume) |
| Yukon | OEL TWA (mg/m³) | 10 mg/m³ (fume) |

### 8.2. Exposure controls

Appropriate engineering controls : Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Hand protection : Wear impervious gloves to minimize skin contact.

Eye protection : Where chemical safety goggles or equivalent.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Granular nuggets, prills or rods.

Color : No data available

Odor : Odorless.

Odor threshold : No data available

pH : 4.0 - 6.0

Relative evaporation rate (butylacetate=1) : No data available

Melting point : 642 °F (339°C)

Freezing point : No data available

Boiling point : > 212 °F (decomposes at 968°F/520°C)

Flash point : No data available

Self ignition temperature : No data available

| | | |
|---|---|---|
| Decomposition temperature | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | No data available |
| Solubility | : | Water: 100 % |
| Log Pow | : | No data available |
| Log Kow | : | No data available |
| Viscosity, kinematic | : | No data available |
| Viscosity, dynamic | : | No data available |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |
| Explosive limits | : | No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

### 10.3. Possibility of hazardous reactions

Will not occur.

### 10.4. Conditions to avoid

None.

### 10.5. Incompatible materials

Aluminum, zinc, tin and their alloys.

### 10.6. Hazardous decomposition products

None.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| | | |
|---|---|---|
| Acute toxicity (oral) | : | Oral: Harmful if swallowed. |
| Acute toxicity (dermal) | : | Not classified |
| Acute toxicity (inhalation) | : | Not classified |

| | |
|---|---|
| ATE CA (oral) | 500 mg/kg body weight |

| **Ammonium chloride (12125-02-9)** | |
|---|---|
| LD50 oral rat | 1650 mg/kg |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Not classified<br>pH: 4.0 - 6.0 |
| Serious eye damage/irritation | : | Causes serious eye irritation.<br>pH: 4.0 - 6.0 |
| Respiratory or skin sensitization | : | Not classified |
| Germ cell mutagenicity | : | Not classified |
| Carcinogenicity | : | Not classified |
| Reproductive toxicity | : | Not classified |
| Specific target organ toxicity – single exposure | : | Not classified |
| Specific target organ toxicity – repeated exposure | : | Not classified |
| Aspiration hazard | : | Not classified |

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Aquatic acute : Not classified

Aquatic chronic : Not classified

| Ammonium chloride (12125-02-9) | |
|---|---|
| LC50 fish 1 | 209 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static]) |

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Ozone : Not classified

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### 14.1. Basic shipping description

In accordance with TDG

**TDG**

Not regulated for transport

### 14.2. Transport information/DOT

**DOT**

Not regulated for transport

### 14.3. Air and sea transport

**IMDG**

Not regulated for transport

**IATA**

Not regulated for transport

## SECTION 15: Regulatory information

### 15.1. Canada National regulations

| Ammonium chloride (12125-02-9) |
|---|
| Listed on the Canadian DSL (Domestic Sustances List) |

### 15.2. US Federal regulations

| Ammonium chloride (12125-02-9) |
|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |

### 15.3. US State regulations

| Ammonium chloride (12125-02-9) |
|---|
| U.S. - Massachusetts - Right To Know List<br>U.S. - Minnesota - Hazardous Substance List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |

## SECTION 16: Other information

Full text of H-phrases:

| | |
|---|---|
| H302 | Harmful if swallowed |
| H319 | Causes serious eye irritation |

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*

# Zinc Chloride
Safety Data Sheet

## SECTION 1: Identification

### 1.1. Product identifier

Product name : Zinc Chloride

### 1.2. Recommended use and restrictions on use

Manufacturing

### 1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

### 1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

## SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture

**GHS-US/CAN Classification**

| | |
|---|---|
| Acute toxicity (oral) Category 4 | H302 |
| Skin corrosion/irritation Category 1B | H314 |
| Hazardous to the aquatic environment - Acute Hazard Category 1 | H400 |
| Hazardous to the aquatic environment - Chronic Hazard Category 1 | H410 |

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS-US/CAN labeling**

Hazard pictograms :

GHS05 GHS07 GHS09

Signal word : Danger

Hazard statements :
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements :
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/…
P312 - Call a POISON CENTER/doctor if you feel unwell
P330 - If swallowed, rinse mouth
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS-CA)

No data available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | % | GHS-CAN classification | GHS-US classification |
|---|---|---|---|---|
| Zinc chloride | (CAS No) 7646-85-7 | 94 - 100 | Acute Tox. 4 (Oral), H302<br>Skin Corr. 1B, H314<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | Acute Tox. 4 (Oral), H302<br>Skin Corr. 1B, H314<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 |

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water.

First-aid measures after eye contact : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

First-aid measures after ingestion : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do not induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Causes severe skin burns.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Harmful if swallowed.

### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : In a remote area, use water fog. Carbon dioxide (CO2). Powder. Foam.

Unsuitable extinguishing media : None.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

### 5.3. Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

No additional information available

#### 6.1.2. For emergency responders

No additional information available

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Avoid raising powdered materials into airborne dust. To clean the floor and all objects contaminated by this material, use water.

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with eyes, skin and clothing. Use personal protective equipment as required. Wash thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Do not expose to temperatures exceeding 50°C/122°F. Keep only in original container. Store in dry protected location to prevent any moisture contact. Storage area: Store at ambient temperature. Store in tightly closed containers. Store under dry conditions. Store in a place accessible by authorized persons only. Store away from heat/moisture.

### 7.3. Specific end use(s)

Manufacturing

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Zinc chloride (7646-85-7)** | | |
|---|---|---|
| USA - ACGIH | ACGIH TWA (mg/m³) | 1 mg/m³ (fume) |
| USA - ACGIH | ACGIH STEL (mg/m³) | 2 mg/m³ (fume) |
| USA - OSHA | OSHA PEL (TWA) (mg/m³) | 1 mg/m³ (fume) |
| Canada (Quebec) | VEMP (mg/m³) | 1 mg/m³ (fume) |
| Alberta | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Alberta | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| British Columbia | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| British Columbia | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Manitoba | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Manitoba | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| New Brunswick | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| New Brunswick | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| New Foundland & Labrador | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| New Foundland & Labrador | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Nova Scotia | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Nova Scotia | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Nunavut | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Nunavut | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Northwest Territories | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Northwest Territories | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Ontario | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Ontario | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Prince Edward Island | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Prince Edward Island | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Saskatchewan | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Saskatchewan | OEL TWA (mg/m³) | 1 mg/m³ (fume) |
| Yukon | OEL STEL (mg/m³) | 2 mg/m³ (fume) |
| Yukon | OEL TWA (mg/m³) | 1 mg/m³ (fume) |

### 8.2. Exposure controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection : Wear impervious gloves to minimize skin contact.

Eye protection : Protective goggles.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : White powder

Odor : Odorless

Odor threshold : No data available

pH : No data available

| | | |
|---|---|---|
| Relative evaporation rate (butylacetate=1) | : | No data available |
| Melting point | : | 287 °C |
| Freezing point | : | No data available |
| Boiling point | : | 732 °C |
| Flash point | : | No data available |
| Self ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Vapour pressure | : | No data available |
| Relative vapour density at 20 °C | : | No data available |
| Relative density | : | 2.93 g/cm3 |
| Solubility | : | No data available |
| Log Pow | : | No data available |
| Log Kow | : | No data available |
| Viscosity, kinematic | : | No data available |
| Viscosity, dynamic | : | No data available |
| Explosive properties | : | No data available |
| Oxidising properties | : | No data available |
| Explosive limits | : | No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

### 10.3. Possibility of hazardous reactions

Will not occur.

### 10.4. Conditions to avoid

None.

### 10.5. Incompatible materials

Cyanides, strong alkalis

### 10.6. Hazardous decomposition products

Hydrochloric acid fumes. ZnO.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| | | |
|---|---|---|
| Acute toxicity (oral) | : | Oral: Harmful if swallowed. |
| Acute toxicity (dermal) | : | Not classified |
| Acute toxicity (inhalation) | : | Not classified |

| | |
|---|---|
| ATE CA (oral) | 500 mg/kg body weight |

| **Zinc chloride (7646-85-7)** | |
|---|---|
| LD50 oral rat | 1100 mg/kg |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Causes severe skin burns and eye damage. |
| Serious eye damage/irritation | : | Eye damage, category 1, implicit |
| Respiratory or skin sensitization | : | Not classified |
| Germ cell mutagenicity | : | Not classified |
| Carcinogenicity | : | Not classified |
| Reproductive toxicity | : | Not classified |
| Specific target organ toxicity – single exposure | : | Not classified |
| Specific target organ toxicity – repeated exposure | : | Not classified |

Aspiration hazard : Not classified

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Aquatic acute : Very toxic to aquatic life.

Aquatic chronic : Very toxic to aquatic life with long lasting effects.

| Zinc chloride (7646-85-7) | |
|---|---|
| BCF fish 1 | 16000 |

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

| Zinc chloride (7646-85-7) | |
|---|---|
| BCF fish 1 | 16000 |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Ozone : Not classified

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14: Transport information

### 14.1. Basic shipping description

In accordance with TDG

**TDG**

UN-No. (TDG) : UN2331

Packing group : III - Minor Danger

TDG Primary Hazard Classes : 8 - Class 8 - Corrosives

Transport document description : UN2331 ZINC CHLORIDE, ANHYDROUS, 8, III

Proper Shipping Name (TDG) : ZINC CHLORIDE, ANHYDROUS

Hazard labels (TDG) : 8 - Corrosive substances


Explosive Limit and Limited Quantity Index : 5 kg

Excepted quantities (TDG) : E1

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 25 kg

Marine pollutant : Yes (IMDG only)

### 14.2. Transport information/DOT

**DOT**

DOT NA no. : UN2331

UN-No.(DOT) : 2331

Packing group (DOT) : III - Minor Danger

| | | |
|---|---|---|
| Transport document description | : | UN2331 Zinc chloride, anhydrous, 8, III |
| Proper Shipping Name (DOT) | : | Zinc chloride, anhydrous |
| Contains Statement Field Selection (DOT) | : | |
| Class (DOT) | : | 8 - Class 8 - Corrosive material 49 CFR 173.136 |
| Division (DOT) | : | 8 |
| Hazard labels (DOT) | : | 8 - Corrosive |


| | | |
|---|---|---|
| Dangerous for the environment | : | Yes |
| Marine pollutant | : | Yes |

| | | |
|---|---|---|
| DOT Special Provisions (49 CFR 172.102) | : | IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).<br>IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.<br>T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)<br>TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : | None |
| DOT Packaging Non Bulk (49 CFR 173.xxx) | : | 213 |
| DOT Packaging Bulk (49 CFR 173.xxx) | : | 240 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : | 25 kg |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : | 100 kg |
| DOT Vessel Stowage Location | : | A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel. |
| Other information | : | No supplementary information available. |

### 14.3. Air and sea transport

#### IMDG

| | | |
|---|---|---|
| UN-No. (IMDG) | : | 2331 |
| Proper Shipping Name (IMDG) | : | ZINC CHLORIDE, ANHYDROUS |
| Transport document description (IMDG) | : | UN 2331 ZINC CHLORIDE, ANHYDROUS, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS |
| Class (IMDG) | : | 8 - Corrosive substances |
| Packing group (IMDG) | : | III - substances presenting low danger |

#### IATA

| | | |
|---|---|---|
| UN-No. (IATA) | : | 2331 |
| Proper Shipping Name (IATA) | : | Zinc chloride, anhydrous |
| Transport document description (IATA) | : | UN 2331 Zinc chloride, anhydrous, 8, III, ENVIRONMENTALLY HAZARDOUS |
| Class (IATA) | : | 8 - Corrosives |
| Packing group (IATA) | : | III - Minor Danger |

## SECTION 15: Regulatory information

### 15.1.Canada National regulations

| **Zinc chloride (7646-85-7)** |
|---|
| Listed on the Canadian DSL (Domestic Sustances List) |

### 15.2. US Federal regulations

| **Zinc chloride (7646-85-7)** |
|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory |

### 15.3. US State regulations

| **Zinc chloride (7646-85-7)** |
|---|
| U.S. - Massachusetts - Right To Know List<br>U.S. - Minnesota - Hazardous Substance List<br>U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List |

## SECTION 16: Other information

Full text of H-phrases:

| | |
|---|---|
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*

# Hydrochloric Acid, 10% v/v

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 07/03/2013 Revision date: 10/24/2017 Supersedes: 09/22/2015 Version: 1.2

## SECTION 1: Identification

### 1.1. Identification

Product form : Mixtures

Product name : Hydrochloric Acid, 10% v/v

Product code : LC15070

### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.

Recommended use : Laboratory chemicals

Restrictions on use : Not for food, drug or household use

### 1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS-US classification**

| | | |
|---|---|---|
| Skin corrosion/irritation Category 1B | H314 | Causes severe skin burns and eye damage |
| Serious eye damage/eye irritation Category 1 | H318 | Causes serious eye damage |

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS-US labeling**

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage

Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapors, spray
P264 - Wash exposed skin thoroughly after handling
P280 - Wear protective gloves, eye protection, protective clothing, face protection
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center or doctor/physician
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing

### 2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | % | GHS-US classification |
|---|---|---|---|
| Water | (CAS-No.) 7732-18-5 | 95.66 | Not classified |
| Hydrochloric Acid, 37% w/w | (CAS-No.) 7647-01-0 | 4.34 | Acute Tox. 4 (Oral), H302<br>Skin Corr. 1B, H314<br>Eye Dam. 1, H318<br>STOT SE 3, H335<br>Aquatic Acute 3, H402 |

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Causes severe skin burns and eye damage.

Symptoms/effects after inhalation : Possible inflammation of the respiratory tract.

Symptoms/effects after skin contact : Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea.

Chronic symptoms : Affection/discolouration of the teeth.

### 4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Fire hazard : Not flammable.

Explosion hazard : Not applicable.

Reactivity : Thermal decomposition generates : Corrosive vapors.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

Other information : Not applicable.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Try to stop release. Dike and contain spill.

#### 6.1.1. For non-emergency personnel

Protective equipment : Gloves. Safety glasses. Protective clothing. Face-shield.

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist, vapors, spray.

Hygiene measures : Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container closed when not in use.

Incompatible products : metals. cyanides. Strong bases. Strong acids.

Incompatible materials : Direct sunlight.

Packaging materials : Do not store in corrodable metal.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Hydrochloric Acid, 37% w/w (7647-01-0)** | | |
|---|---|---|
| ACGIH | ACGIH Ceiling (mg/m³) | 2.98 mg/m³ |
| ACGIH | ACGIH Ceiling (ppm) | 2 ppm |
| OSHA | OSHA PEL (Ceiling) (mg/m³) | 7 mg/m³ |
| OSHA | OSHA PEL (Ceiling) (ppm) | 5 ppm |
| IDLH | US IDLH (ppm) | 50 ppm |
| NIOSH | NIOSH REL (ceiling) (mg/m³) | 7 mg/m³ |
| NIOSH | NIOSH REL (ceiling) (ppm) | 5 ppm |

| **Water (7732-18-5)** |
|---|
| Not applicable |

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

### 8.3. Individual protection measures/Personal protective equipment

**Personal protective equipment:**

Chemical resistant apron. Face shield. Gloves. Safety glasses. Protective clothing.

**Hand protection:**

Wear protective gloves

**Eye protection:**

Chemical goggles or face shield

**Skin and body protection:**

Wear suitable protective clothing

**Respiratory protection:**

Wear appropriate mask

**Other information:**

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Color | : | Colorless |
| Odor | : | Odorless |
| Odor threshold | : | No data available |
| pH | : | ≤ 0.5 |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | No data available |
| Relative evaporation rate (butyl acetate=1) | : | No data available |
| Flammability (solid, gas) | : | Non flammable. |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | No data available |
| Specific gravity / density | : | 1 - 1.1 |
| Molecular mass | : | 36.46 g/mol |
| Solubility | : | Soluble in water. Soluble in ethanol. Soluble in methanol. |
| Log Pow | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity, kinematic | : | No data available |
| Viscosity, dynamic | : | No data available |
| Explosion limits | : | No data available |
| Explosive properties | : | Not applicable. |
| Oxidizing properties | : | None. |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

### 10.2. Chemical stability

Stable under normal conditions. Not established.

### 10.3. Possibility of hazardous reactions

Reacts violently with (some) bases: release of heat.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

metals. cyanides. Strong bases.

### 10.6. Hazardous decomposition products

Hydrogen chloride. Thermal decomposition generates : Corrosive vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Not classified

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| LD50 oral rat | 700 mg/kg |
| LD50 dermal rabbit | 5010 mg/kg |
| ATE US (oral) | 700 mg/kg body weight |
| ATE US (dermal) | 5010 mg/kg body weight |

| Water (7732-18-5) | |
|---|---|
| LD50 oral rat | ≥ 90000 mg/kg |
| ATE US (oral) | 90000 mg/kg body weight |

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: ≤ 0.5

Serious eye damage/irritation : Causes serious eye damage.
pH: ≤ 0.5

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified
Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| IARC group | 3 - Not classifiable |

Reproductive toxicity : Not classified
Based on available data, the classification criteria are not met

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after inhalation : Possible inflammation of the respiratory tract.

Symptoms/effects after skin contact : Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea.

Chronic symptoms : Affection/discolouration of the teeth.

## SECTION 12: Ecological information

### 12.1. Toxicity

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| LC50 fish 1 | 282 mg/l (LC50; 96 h) |
| EC50 Daphnia 1 | < 56 mg/l (EC50; 72 h) |

### 12.2. Persistence and degradability

| Hydrochloric Acid, 10% v/v | |
|---|---|
| Persistence and degradability | Not established. |

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| Persistence and degradability | Biodegradability: not applicable. No test data on mobility of the components available. |
| Biochemical oxygen demand (BOD) | Not applicable |
| Chemical oxygen demand (COD) | Not applicable |
| ThOD | Not applicable |

| Water (7732-18-5) | |
|---|---|
| Persistence and degradability | Not established. |

### 12.3. Bioaccumulative potential

| Hydrochloric Acid, 10% v/v | |
|---|---|
| Bioaccumulative potential | Not established. |

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| Log Pow | 0.25 (QSAR) |
| Bioaccumulative potential | Low potential for bioaccumulation (Log Kow < 4). |

| Water (7732-18-5) | |
|---|---|
| Bioaccumulative potential | Not established. |

### 12.4. Mobility in soil

| Hydrochloric Acid, 37% w/w (7647-01-0) | |
|---|---|
| Ecology - soil | May be harmful to plant growth, blooming and fruit formation. |

### 12.5. Other adverse effects

Effect on the global warming : No known effects from this product.
GWPmix comment : No known effects from this product.

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials : Avoid release to the environment.

## SECTION 14: Transport information

**Department of Transportation (DOT)**

In accordance with DOT

Transport document description : UN1789 Hydrochloric acid, 8, II

UN-No.(DOT) : UN1789
Proper Shipping Name (DOT) : Hydrochloric acid
Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 8 - Corrosive


DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242

| | | |
|---|---|---|
| DOT Special Provisions (49 CFR 172.102) | : | A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.<br>A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.<br>B3 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized.<br>B15 - Packaging must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance.<br>IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.<br>N41 - Metal construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.<br>T8 - 4 178.274(d)(2) Normal..... Prohibited<br>TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.<br>TP12 - This material is considered highly corrosive to steel. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : | 154 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : | 1 L |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : | 30 L |
| DOT Vessel Stowage Location | : | C - The material must be stowed ‘‘on deck only’’ on a cargo vessel and on a passenger vessel. |
| Other information | : | No supplementary information available. |

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| **Hydrochloric Acid, 10% v/v** | |
|---|---|
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard |

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| | | |
|---|---|---|
| Hydrochloric Acid, 37% w/w | CAS-No. 7647-01-0 | 4.34% |

| **Hydrochloric Acid, 37% w/w (7647-01-0)** | |
|---|---|
| EPA TSCA Regulatory Flag | T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA. |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 5000 lb |
| SARA Section 302 Threshold Planning Quantity (TPQ) | 500 lb |
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard |

### 15.2. International regulations

**CANADA**
No additional information available

**EU-Regulations**
No additional information available

**National regulations**
No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

Revision date : 10/24/2017

Other information : None.

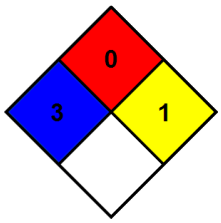
Full text of H-phrases: see section 16:

| | |
|---|---|
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |
| H335 | May cause respiratory irritation |
| H402 | Harmful to aquatic life |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.




Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : C

C - Safety glasses, Gloves, Synthetic apron

SDS US LabChem

*Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.*

Northstar Chemical

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Sodium Hydroxide Solution, 50%**

CHEMICAL NAME/CLASS: Caustic Soda

PRODUCT USE: Chemical processing, soaps and detergents, water treatment, pulp and paper.

SUPPLIER/MANUFACTURER'S NAME: **Northstar Chemical, Inc.**

ADDRESS: 14200 S.W. Tualatin-Sherwood Rd.
Sherwood, OR 97140

BUSINESS PHONE: 888-793-9476

EMERGENCY PHONE: **CHEMTREC**: 800-424-9300

DATE OF PREPARATION: March 30, 2020

## 2. HAZARD IDENTIFICATION

### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200
Corrosive to metals - Category 1
Skin corrosion - Category 1A
Serious eye damage - Category 1

### LABEL ELEMENTS:

**Signal Word**: **DANGER**

### Hazards:

May be corrosive to metals.
Causes severe skin burns and eye damage.

### Precautionary statements

**Prevention**

Keep only in original container.
Wash skin thoroughly after handling.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage

**Storage**
Store locked up.
Store in corrosive resistant container with a resistant inner liner.

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

**Other hazards**
No data available

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

| Components | CAS Number | Concentration |
|---|---|---|
| Water | 7732-18-5 | 49 - 51.5 % |
| Sodium hydroxide | 1310-73-2 | 48.5 - 51 % |

## 4. FIRST-AID MEASURES

**Description of first aid measures:**
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

**Eye contact:** - Wash eyes with plenty of water for 15 minutes at least. Do not forget to remove contact lenses. Washing with water is the only acceptable method of removal of caustic soda (lye) from the eyes and skin. You may have 10 seconds or less to avoid serious permanent injury. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious. Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**
**Notes to physician:** Eye irrigation may be necessary for an extended period of time to remove as much caustic as possible. Duration of irrigation and treatment is at the discretion of medical personnel. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media:** This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.
**Unsuitable extinguishing media:** Do not use water.

**Special hazards arising from the substance or mixture Hazardous combustion products**:
Not applicable

**Unusual Fire and Explosion Hazards:**
Product reacts with water. Reaction may produce heat and/or gases. This reaction may be violent. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters:**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Water is not recommended but may be applied in large quantities as a fine spray when other extinguishing agents are not available. This material does not burn. Fight fire for other material that is burning.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:**
Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: Dilute with water. Large spills: Dike area to contain spill. Collect in suitable and properly labeled containers. Attempt to neutralize by adding materials such as Acetic acid See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING and STORAGE

**Precautions for safe handling:** Do not get in eyes, on skin, on clothing. Do not swallow. Avoid breathing mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. ALWAYS add caustic soda solution to water with constant agitation. NEVER add water to the caustic soda solution. 2. The water should be lukewarm (27-38°C or 80-100°F). NEVER start with hot or cold water. The addition of caustic soda to liquid will cause a rise in temperature. If caustic soda becomes concentrated in one area, is added too rapidly, or is added to hot or cold liquid, a rapid temperature increase can result in DANGEROUS mists, boiling or spattering which may cause an immediate VIOLENT ERUPTION. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Keep container closed. Do not store in: Zinc. Aluminum. Brass. Tin. See Section 10 for more specific information.

**Storage stability**
Storage temperature: > 16 °C (> 61 °F)

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**Occupational exposure limits**

**US OSHA Table Z-1 Limit for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value |
|---|---|---|
| Sodium hydroxide (CAS 1310-73-2) | TWA | 2 mg/m3 |

**US ACGIH Threshold Limit Values**

| Components | Type | Value |
|---|---|---|
| Sodium hydroxide (CAS 1310-73-2) | Ceiling | 2 mg/m3 |

**US OSHA P0**

| Components | Type | Value |
|---|---|---|
| Sodium hydroxide (CAS 1310-73-2) | Ceiling | 2 mg/m3 |

**Exposure controls**

**Engineering controls:**
Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**
**Eye/face protection:** Use chemical goggles.
**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Particulate filter.

## 9. PHYSICAL and CHEMICAL PROPERTIES

Appearance
Physical state: Liquid above freezing point
Color: Colorless
Odor: Odorless
Odor Threshold: No test data available
pH : 14 *Literature*
Melting point/range: 14 °C ( 57 °F) *Literature*
Freezing point: 14 °C ( 57 °F) *Literature*
Boiling point: (760 mmHg) 145 °C ( 293 °F) ASTM D1120
Flash point: closed cup *Literature* None
Evaporation Rate (Butyl Acetate = 1): No test data available
Flammability (solid, gas): Not Applicable
Flammability (liquids): Not expected to be a static-accumulating flammable liquid.
Lower explosion limit: Not applicable
Upper explosion limit: Not applicable
Vapor Pressure: 1.5 mmHg at 20 °C (68 °F) *Literature*
Relative Vapor Density (air = 1): Not applicable
Relative Density (water = 1): 1.52 at 20 °C (68 °F) *Literature*
Partition coefficient: noctanol/water: No data available
Auto-ignition temperature: Not applicable
Decomposition temperature: No test data available

Kinematic Viscosity: 0.35 St at 25 °C (77 °F) Calculated.
Explosive properties: No data available
Oxidizing properties: No
Liquid Density: 1.5 g/cm3 at 20 °C (68 °F) *Literature*
Molecular weight: No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY and REACTIVITY

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Avoid moisture. Product absorbs carbon dioxide from the air.

**Incompatible materials:** Heat is generated when mixed with water. Spattering and boiling can occur. Caustic soda solution reacts readily with various reducing sugars (i.e. fructose, galactose, maltose, dry whey solids) to produce CO. Take precautions including monitoring the tank atmosphere for CO to ensure safety of personnel before vessel entry. Avoid contact with: Acids. Glycols. Halogenated organics. Organic nitro compounds. Flammable hydrogen may be generated from contact with metals such as: Zinc. Aluminum. Tin. Brass.

**Hazardous decomposition products:** Does not decompose.

## 11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.
Information on likely routes of exposure Ingestion, Inhalation, Skin contact, Eye contact.
Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

**Acute oral toxicity**
This is a concentrated caustic soda solution. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat.
As product: Single dose oral LD50 has not been determined.
Based on information for component(s): LD50, > 5,000 mg/kg Estimated

**Acute dermal toxicity**
Absorption has not been determined due to corrosivity.
As product: The dermal LD50 has not been determined.
Based on information for component(s): LD50, > 5,000 mg/kg Estimated

**Acute inhalation toxicity**
This is a concentrated caustic soda solution. Mist may cause severe irritation of upper respiratory tract (nose and throat).
As product: The LC50 has not been determined.

**Skin corrosion/irritation**
Based on testing for product(s) in this family of materials:
This is a concentrated caustic soda solution.
Brief contact may cause severe skin burns.
Symptoms may include pain, severe local redness and tissue damage.

**Serious eye damage/eye irritation**
Based on testing for product(s) in this family of materials:
This is a concentrated caustic soda solution.

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.
Chemical burns may occur.
Mist may cause eye irritation

**Sensitization For skin sensitization**
No specific, relevant data available for assessment.

**For respiratory sensitization**
No specific, relevant data available for assessment.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

**Aspiration Hazard**
Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Based on available data for the component(s), repeated exposures are not anticipated to cause significant adverse effects

**Carcinogenicity**
No relevant data found.

**Teratogenicity**
No relevant data found.

**Reproductive toxicity**
No relevant data found.

**Mutagenicity**
For the major component(s): In vitro genetic toxicity studies were negative.

## 12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

**Toxicity**
**Acute toxicity to fish**: May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

**Persistence and degradability**
**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**Bioaccumulative potential**
**Bioaccumulation:** No bioconcentration is expected because of the relatively high water solubility.

**Mobility in soil**
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 14 Estimated.

## 13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler.

## 14. TRANSPORTATION INFORMATION

**DOT**

| | |
|---|---|
| Proper shipping name | Sodium hydroxide solution |
| UN number | UN 1824 |
| Class | 8 |
| Packing group | II |
| Reportable Quantity | Sodium hydroxide |

**Classification for SEA transport (IMO-IMDG):**

| | |
|---|---|
| Proper shipping name | SODIUM HYDROXIDE SOLUTION |
| UN number | UN 1824 |
| Class | 8 |
| Packing group | II |
| Marine pollutant | No |

**Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code**
Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

| | |
|---|---|
| Proper shipping name | Sodium hydroxide solution |
| UN number | UN 1824 |
| Class | 8 |
| Packing group | II |

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

## 15. REGULATORY INFORMATION

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**
Corrosive to metals
Skin corrosion or irritation
Serious eye damage or eye irritation

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Prop. 65**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**United States TSCA Inventory (TSCA)**
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

## 16. OTHER INFORMATION

Product Literature Additional information on this product may be obtained by calling your sales or customer service contact.

**Hazard Rating System HMIS**
Health 3
Flammability 0
Physical Hazard 2

**ACGIH:** USA ACGIH Threshold Limit Values (TLV)
**C**: Ceiling limit
**OSHA P0**: USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
**OSHA Z-1**: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
**TWA**: 8-hour time weighted average

**Full text of other abbreviations**
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative Information Source and References This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

**Information Source and References**
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

# Appendix F

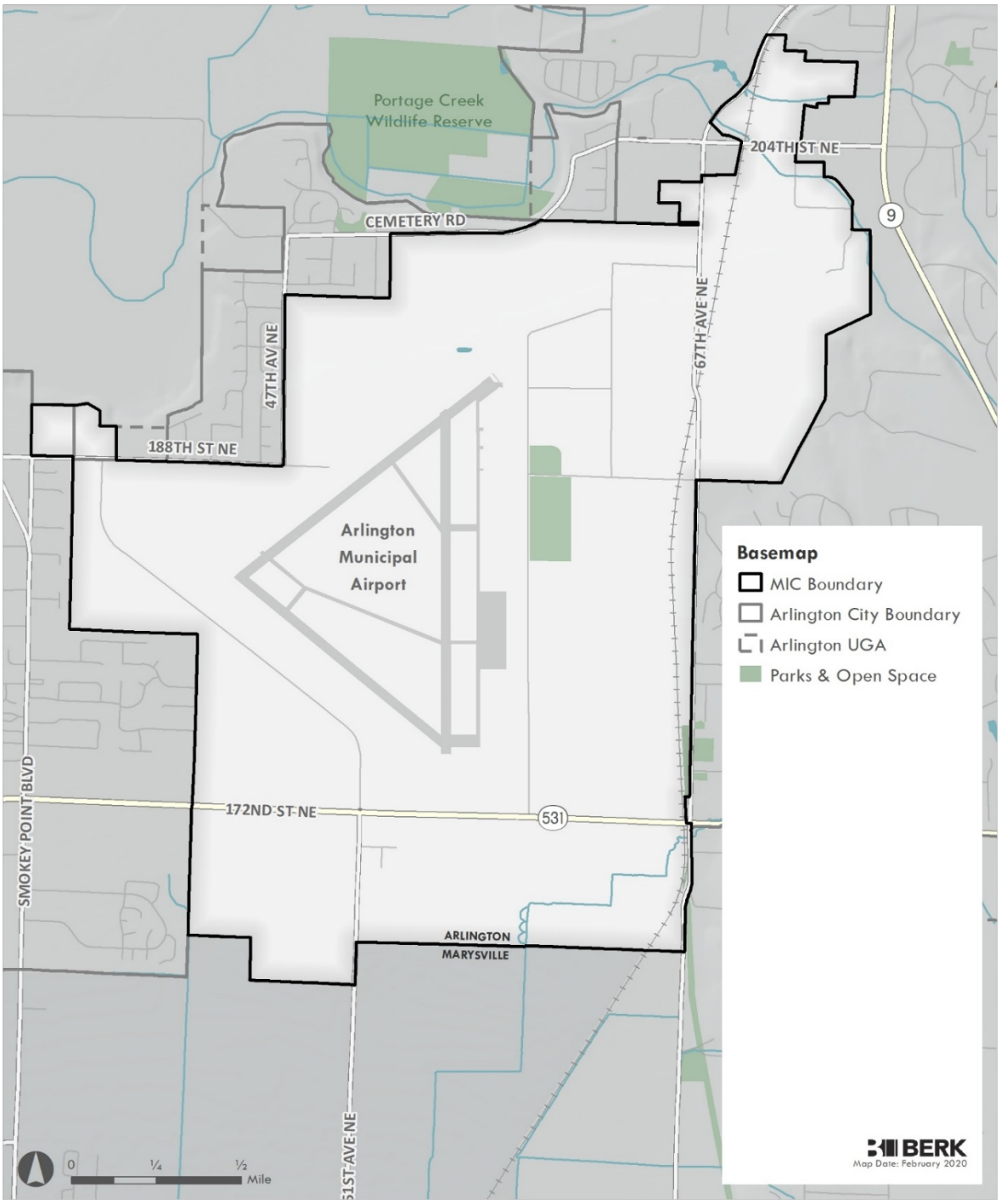
# State Environmental Policy Act (SEPA) Checklist

CASCADE ENVIRONMENTAL MANAGEMENT

# Cascade Industrial Center Planned Action
# Modified SEPA Checklist

## Cascade Industrial Center Planned Action Area

**Exhibit A: Cascade Industrial Center Map**




*Source: City of Arlington, 2020; BERK, 2020.*

# SEPA Checklist and Mitigation Measures

**Exhibit B: Example Environmental Checklist and Required Mitigation Document**

## INTRODUCTION

The State Environmental Policy Act (SEPA) requires environmental review for project and non-project proposals that are likely to have adverse impacts upon the environment. In order to meet SEPA requirements, the City of Arlington issued the Cascade Industrial Center Planned Action Draft Environmental Impact Statement (EIS) on October 1, 2020, and the Final EIS was issued on January 11, 2021. The Draft and the Final EIS together are referenced herein as the "EIS". The EIS has identified significant beneficial and adverse impacts that are anticipated to occur with the future development of the Planned Action Area, together with a number of possible measures to mitigate those significant adverse impacts.

On January 19, 2021, the City of Arlington adopted Ordinance No. 2021-002 establishing a planned action designation for the Cascade Industrial Center studied as Planned Action in the EIS (see **Exhibit A**). SEPA Rules indicates review of a project proposed as a planned action is intended to be simpler and more focused than for other projects (WAC 197-11-172). In addition, SEPA allows an agency to utilize a modified checklist form that is designated within the planned action ordinance (see RCW 43.21c.440). This **Exhibit B-1** provides a modified checklist form adopted in the Cascade Industrial Center Planned Action Ordinance.

## MITIGATION DOCUMENT

A Mitigation Document is provided in **Exhibit B-2**, and also summarized in the environmental checklist. **Exhibit B-2** establishes specific mitigation measures, based upon significant adverse impacts identified in the EIS. The mitigation measures shall apply to future development proposals which are consistent with the Planned Action scenarios reviewed in the EIS, and which are located within the Cascade Industrial Center Planned Action Area (see **Exhibit A**). In addition, **Exhibit B-3** provides details of transportation mitigation requirements.

## APPLICABLE PLANS AND REGULATIONS

The EIS identifies specific regulations that act as mitigation measures. These are summarized in **Exhibit B-4** by EIS topic, and are advisory to applicants. All applicable federal, state, and local regulations shall apply to Planned Actions, including the regulations that are adopted with the Preferred Alternative. Planned Action applicants shall comply with all adopted regulations where applicable including those listed in the EIS and those not included in the EIS.

## INSTRUCTIONS TO APPLICANTS

This environmental checklist asks you to describe some basic information about your proposal. The City of Arlington will use this checklist to determine whether the project is consistent with the analysis in the Cascade Industrial Center Planned Action EIS and qualifies as a planned action or would otherwise require additional environmental review under SEPA. Answer the questions briefly, with the most precise information known, or give the best description you can. You must answer each question accurately and carefully, to the best of your knowledge. The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The City may ask you to explain your answers or provide additional information. In most cases, you should be able to answer the questions from your own project plans and the Planned Action EIS without the need to hire experts.

## MODIFIED SEPA CHECKLIST

**Exhibit B-1**

# A. Proposal Description

| | | |
|---|---|---|
| Date: | October 17, 2023 | |
| Applicant: | Hadi Mirzai | |
| Property Owner: | Same as Applicant | |
| Property Address | Street: 18520 67th Avenue NE | City, State, Zip Code: Arlington WA 98223 |
| Parcel Information | Assessor Parcel Number: 31052200102000 | Property Size in Acres: 2.5 |
| Give a brief, complete description of your proposal. | Incorporation of a new small parts galvanizing facility within the existing 39,000 SF building. Site improvements regarding parking areas and landscaping are also included. | |
| Property Zoning | District Name: GI (General Industrial) | Building Type: IIB |
| Permits Requested (list all that apply) | Land Use: Special Use Permit<br>Building: Building, Mechancial, | Engineering: Public works<br>Other: |
| | All Applications Deemed Complete? Yes☐ No☑<br>Explain: Working throuhg the submittal process | |
| | Are there pending governmental approvals of other proposals directly affecting the property covered by your proposal? Yes☐ No☑<br>Explain: | |
| Existing Land Use | Describe Existing Uses on the Site:<br>The existing building is currently vacant | |
| Proposed Land Use – Check and Circle All That Apply | Industrial/Manufacturing<br>Aviation Flightline | Commercial<br>Open Space, Recreation<br>Other |
| Non-residential Uses: Building Square Feet | Existing: 39,000 SF | Proposed: None |
| | Employment in Ordinance: 13,813 | Job Remainder as of _____20__<br>_____ square feet |

| | | | |
|---|---|---|---|
| Dwellings | # Existing Dwellings:<br>#___ Dwelling Type _____<br>#___ Dwelling Type _____ | # Proposed Dwellings Units:<br>#___ Type _____<br>#___ Type _____ | Proposed Density (du/ac):<br>No residential Proposed |
| | Dwelling Threshold Total in Ordinance: 848 | Dwelling Bank Remainder as of _____20__<br>_____dwellings | |
| Building Height | Existing Stories: 1 + mezzanine<br>Existing Height in feet: 32' | Proposed Stories: 1 + mezzanine<br>Proposed Height in feet: Same as existing | |
| Parking Spaces | Existing: 0 | Proposed: 70 | |
| Impervious Surfaces | Existing Square Feet: 109,336 SF | Proposed Square Feet: 99,496 SF | |
| PM Peak Hour Weekday Vehicle Trips | Existing Estimated Trips Total:<br>0 | Future Estimated Trips Total:<br>38 ADT's (5 PM peak-hour) | Net New Trips:<br>0 |
| | Source of Trip Rate: ITE Manual ☐ Other ☑ | Transportation Impacts Determined Consistent with AMC 20.04.120 and Chapter 20.56. Yes ☑ No ☐ | |
| Proposed timing or schedule (including phasing). | Project is expected to be under construction by Spring 2024 | | |
| Describe plans for future additions, expansion, or further activity related to this proposal. | None | | |
| List any available or pending environmental information directly related to this proposal. | Traffic Impact Analysis prepared by Kimley Horn, dated August 31, 2023; Geotechnical Engineering Evaluation prepared by PanGeo dated October 19, 2017. | | |

# B. Environmental Checklist and Mitigation Measures

## NATURAL ENVIRONMENT CHECKLIST AND MITIGATION MEASURES

### Geology/Soils Checklist and Mitigation Measures

| | |
|---|---|
| 1. Description of Conditions<br>A. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____<br>B. What is the steepest slope on the site (approximate percent slope)? 7%<br>C. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? Marysville Sand recessional outwash from the Vashon glaciation | **Staff Comments:** |
| 2. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.<br>No fill is inteneded to be used. | |
| 3. Has any part of the site been classified as a "geologically hazardous" area? (Check all that apply)<br>☐ Landslide Hazards<br>☐ Erosion Hazards<br>☐ Seismic Hazards<br>☐ Liquefaction Hazards<br>☐ Other: _____<br>Describe: NA | |
| 4. Proposed Measures to control impacts including **Exhibit B-2 and B-4** regarding Mitigation Document and Applicable Regulations and Advisory Notes, respectively**:**<br>☐ Temporary erosion and sediment controls<br>☐ Compliance with grading and fill standards<br>☐ Compliance with Critical Area Regulations<br>Explain:<br>No additional cut or fill is required aside from topsoil in new landscape | |

### Water Resources/Stormwater Checklist and Mitigation Measures

| | |
|---|---|
| 5. Will the proposal require or result in (check all that apply and describe below):<br>☐ any work over, in, or adjacent to (within 200 feet) of Edgecomb Creek or Portage Creek?<br>☐ fill and dredge material that would be placed in or removed from surface water or wetlands?<br>☐ surface water withdrawals or diversions?<br>☐ discharges of waste materials to surface waters?<br>☐ groundwater withdrawal or discharge?<br>☐ waste materials entering ground or surface waters? | **Staff Comments:** |
| 6. Describe the source of runoff (including stormwater) and method of collection, treatment, and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.<br>Stormwater is planned to be collected in the existing approved infiltrat | |
| 7. Is the area designated a critical aquifer recharge area? If so, please describe:<br>No | |
| 8. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?<br>Approximately 91% | |

## Water Resources/Stormwater Checklist and Mitigation Measures

9. **What measures are proposed to reduce or control water resources/stormwater impacts?**

Proposed Measures to control impacts including **Exhibit B-2 and B-4** regarding Mitigation Document and Applicable Regulations and Advisory Notes, respectively (check all that apply):

- ☐ Compliance with construction-related stormwater requirements, including temporary erosion and sediment control, and development and implementation of a stormwater pollution and spill prevention plan.
- ☐ Determination of necessary permanent, long-term water quality treatment requirements.
- ☐ Low Impact Development (LID) techniques employed, consistent with AMC 13.28?
- ☐ Adequate erosion protection at outfalls.
- ☐ Other:

Explain:

The existing system will be utilized.

## Plants and Animals Checklist and Mitigation Measures

10. Check or circle types of vegetation found on the site:
    - ☐ Deciduous tree: Alder, maple, aspen, other _____
    - ☐ Evergreen tree: Fir, cedar, pine, other
    - ☐ Shrubs
    - ☐ Grass
    - ☐ Pasture
    - ☐ Crop or grain
    - ☐ Wet soil plants: Cattail, buttercup, bullrush, skunk cabbage, other
    - ☐ Water plants: Water lily, eelgrass, milfoil, other _____

    Other types of vegetation: _____

11. Are there wetlands on the property? Please describe their acreage and classification.

No

12. Is there riparian habitat on the property?

No

13. What kind and amount of vegetation will be removed or altered?

None.

14. List threatened or endangered species known to be on or near the site

None Known

15. Are there plants or habitats subject to Critical Areas and/or Shoreline Master Program?

No vegitation exists

16. Is the proposal consistent with critical area regulations, shoreline regulations, and requirements of the AMMIC Subarea Plan (now retitled Cascade Industrial Center)? Please describe.

The site will be landscaped to meet city requirements for city shading

17. Proposed landscaping, use of native plants, buffers, or other measures to preserve or enhance vegetation on the site, if any:

No vegitation exists

**Staff Comments:**

## Plants and Animals Checklist and Mitigation Measures

| | |
|---|---|
| 18. Proposed Measures to control impacts including **Exhibit B-2 and B-4** regarding Mitigation Document and Applicable Regulations and Notes, respectively (check all that apply):<br>☐ Compliance with Critical Areas Ordinance<br>☐ Compliance with Shoreline Master Program<br>☐ Implementation of on-site or street frontage green infrastructure<br>☑ Implementation of Chapter 20.76 - Screening and Trees<br>☐ Other:<br>Explain:<br>City landscaping standards will be met | |

# CULTURAL RESOURCES CHECKLIST AND MITIGATION MEASURES

## Cultural Resources Checklist and Mitigation Measures

| | |
|---|---|
| 19. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national or state preservation registers? If so, specifically describe.<br>No | **Staff Comments:** |
| 20. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.<br>No obvious evidence of historic use or occupation. | |
| 21. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national or state preservation registers? If so, specifically describe.<br>No | |
| 22. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.<br>No obvious evidence of historic use or occupation. | |
| 23. Proposed Measures to control impacts including **Exhibit B-2 and B-4** regarding Mitigation Document and Applicable Regulations and Notes, respectively (check all that apply):<br>☑ Compliance with AMMIC (now renamed Cascade Industrial Center) Subarea Plan.<br>☑ Compliance with other applicable land use and shoreline policies and development regulations.<br>☑ Tribal, federal, or state consultations for cultural or eligible historic resources.<br>☑ Evaluation per Exhibit B-2 and implementation of associated recommended conditions.<br>☑ Inadvertent discovery plan.<br>☐ Other<br>Explain:<br>In the event that construction activities encounter historic or cultural | |

# TRANSPORTATION CHECKLIST AND GREENHOUSE GAS MITIGATION MEASURES

## Transportation Checklist and Mitigation Measures

| | |
|---|---|
| 24. Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on site plans, if any.<br>The site will be accessed via the existing shared driveway off of 67th Avenue NE. | **Staff Comments:** |
| 25. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?<br>No. Nearest stop is approximately 1.0 miles from site | |
| 26. How many parking spaces would the completed project have? How many would the project eliminate?<br>No spaces currently exist. Completed project is proposed to have 70 stalls. | |
| 27. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).<br>No | |
| 28. How many PM peak hour vehicular trips per day would be generated by the completed project?<br>5 PM Peak-hour trips will be generated | |
| 29. Is the land use addressed by the EIS Greenhouse Gas Analysis?<br>No | |
| 30. Measures to control impacts including **Exhibit B-2, Exhibit B-3, and B-4 regarding** Mitigation Document, Additional Mitigation Requirements and Procedures, and Applicable Regulations and Notes, respectively **(check all that apply):**<br>☐ Evaluate and mitigate roadways consistent with Planned Action Ordinance Section 4.D(3).<br>☐ Commute Trip Reduction (AMC Chapter 10.80)<br>☐ Transportation Demand Management (TDM) Programs<br>☐ Street frontage standards<br>☒ Impact fee and SEPA mitigation fee for fair share of capital improvements<br>☐ Other:<br>Explain: | |

# LAND USE AND AESTHETICS CHECKLIST AND MITIGATION MEASURES

## Land Use and Aesthetics Checklist and Mitigation Measures

| | |
|---|---|
| 31. What is the current use of the site and adjacent properties?<br>Site and building were used for industrial uses in the past. Adjacent uses are industrial in nature | **Staff Comments:** |
| 32. Describe any structures on the site. Will any structures be demolished? If so, what type, dwelling units, square feet?<br>There is an existing 39,000 SF building and also a covered shed that is 2,945 SF | |
| 33. What is the current zoning classification of the site?<br>GI - General Industrial | |
| 34. What is the current Comprehensive Plan designation and zoning classification of adjacent sites?<br>GI - General Industrial | |
| 35. If applicable, what is the current shoreline master program designation of the site?<br>N/A | |

## Land Use and Aesthetics Checklist and Mitigation Measures

| | |
|---|---|
| 36. What is the planned use of the site? List type of use, number of dwelling units and building square feet.<br>Manufacturing, 39,000 SF | |
| 37. Approximately how many people would reside or work in the completed project?<br>Approximately 15 | |
| 38. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.<br>No housing proposed. | |
| 39. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.<br>No housing will be eliminated. | |
| 40. Approximately how many people would the completed project displace?<br>None | |
| 41. What is the tallest height of any proposed structure(s)?<br>32 feet | |
| 42. Would any views in the immediate vicinity be altered or obstructed?<br>No | |
| 43. Would the proposal produce light or glare? What time of day would it mainly occur?<br>Building lighting during nightime hours | |
| 44. Could light or glare from the finished project be a safety hazard or interfere with views?<br>Not anticipated | |
| 45. What existing offsite sources of light or glare may affect your proposal?<br>Adjacent street and building lighting | |
| 46. Would shade or shadow affect public parks, recreation, open space, or gathering spaces?<br>Not anticipated | |
| 47. Proposed Measures to control impacts including **Exhibit B-2 and B-4 regarding** Mitigation Document and Applicable Regulations and Notes, respectively (check all that apply):<br>☒ Compliance with AMMIC Subarea Plan.<br>☐ Compliance with other applicable land use and shoreline policies and development regulations.<br>☐ Other<br>Explain: | |

# UTILITIES AND PUBLIC SERVICES CHECKLIST AND MITIGATION MEASURES

## Public Services and Utilities Checklist

| | |
|---|---|
| 48. Water Supply: Would the project result in an increased need for water supply or fire flow pressure? Can City levels of service be met?<br>Yes. Fire flow will need to be confirmed. It is believed that adequate supply is in the vicinity. | **Staff Comments:** |
| 49. Wastewater: Would the project result in an increased need for wastewater services? Can City levels of service be met?<br>No, Sewer is available and connected to the existing building. | |

## Public Services and Utilities Checklist

| | |
|---|---|
| 50. Police Protection: Would the project increase demand for police services? Can City levels of service be met?<br>Demand should decrease with building occupation. It is anticipated that service can be met. | |
| 51. Fire and Emergency Services: Would the project increase demand for fire and/or emergency services? Can levels of services be met?<br>Demand should decrease with building occupation. It is anticipated that service can be met. | |
| 52. Schools: Would the project result in an increase in demand for school services? Can levels of services be met? Is an impact fee required?<br>Schools should not be impacted by this proposal. | |
| 53. Parks and Recreation: Would the project require an increase in demand for parks and recreation? Can levels of services be met?<br>It is not anticipated that parks and recreation will be impacted by this proposal. | |
| 54. Other Public Services and Utilities: Would the project require an increase in demand for other services and utilities? Can levels of services be met? | |
| 55. Proposed Measures to control impacts including **Exhibit B-1 and B-4 regarding** Mitigation Required for Development Applications and **Exhibit B-3** Applicable Regulations **(check all that apply):**<br>□ Capital Facility Plan has been considered, and development provides its fair share of the cost of improvements consistent with applicable local government plans and codes.<br>□ Law enforcement agency has been consulted, and development reflects applicable code requirements.<br>□ Fire protection agency has been consulted, and development complies with Uniform Fire Code.<br>□ School impact fee, if applicable.<br>□ Parks impact fee, if applicable.<br>□ Developer has coordinated with City to ensure that sewer lines, water lines, or stormwater facilities will be extended to provide service to proposed development site where required.<br>□ General facility charges have been determined to ensure cumulative impacts to utilities are addressed.<br>□ Other Measures to reduce or control public services and utilities impacts:<br><br>Explain: | |

# C. Applicant Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

| | |
|---|---|
| Signature: |  |
| Date: | 17 OCT 2023 |

# D. Review Criteria

## REVIEW CRITERIA

The City's SEPA Responsible Official may designate "planned actions" consistent with criteria in Ordinance No. 2021-002 Subsection 4.E.

| Criteria | Discussion |
|---|---|
| (a) the proposal is located within the Planned Action area identified in Exhibit A of this Ordinance; | |
| (b) the proposed uses and densities are consistent with those described in the Planned Action EIS and Section 4.D of this Ordinance; | |
| (c) the proposal is within the Planned Action thresholds and other criteria of Section 4.D of this Ordinance; | |
| (d) the proposal is consistent with the City of Arlington Comprehensive Plan and the AMMIC Subarea Plan; | |
| (e) the proposal's significant adverse environmental impacts have been identified in the Planned Action EIS; | |
| (f) the proposal's significant impacts have been mitigated by application of the measures identified in Exhibit B, and other applicable City regulations, together with any modifications or variances or special permits that may be required; | |
| (g) the proposal complies with all applicable local, state and/or federal laws and regulations, and the SEPA Responsible Official determines that these constitute adequate mitigation; | |
| (h) the proposal is not an essential public facility as defined by RCW 36.70A.200(1), unless the essential public facility is accessory to or part of a development that is designated as a planned action under this ordinance. | |

## DETERMINATION CRITERIA

Applications for planned actions shall be reviewed pursuant to the process in Ordinance No. 2021-002 Section 4.G.

| Requirement | Discussion |
|---|---|
| Applications for planned actions were made on forms provided by the City including this Cascade Industrial Center Environmental Checklist and Mitigation Document. | |
| The application has been deemed complete in accordance with AMC Chapter 20.16. | |
| The proposal is located within Planned Action Area pursuant to Exhibit A of this Ordinance | |

# E. SEPA Responsible Official Determination

| | |
|---|---|
| The proposed use(s) are listed in Section 4D of the Ordinance and qualify as a Planned Action. | |

**A. Qualifies as a Planned Action:** The application is consistent with the criteria of Ordinance 2021-002 and thereby qualifies as a Planned Action project.
It shall proceed in accordance with the applicable permit review procedures specified in AMC 20.16, except that no SEPA threshold determination, EIS or additional SEPA review shall be required.
Notice shall be made pursuant to AMC Chapter 20.98. as part of notice of the underlying permits and shall include the results of the Planned Action determination. If notice is not otherwise required for the underlying permit, no special notice is required. See Section 4.G(3)(a) regarding notice of the zoning permit decision.
The review process for the underlying permit shall be as provided in AMC Chapter 20.16.
NOTE: If it is determined during subsequent detailed permit review that a project does not qualify as a planned action, this determination shall be amended.

| | |
|---|---|
| **Signature** | |
| **Date:** | |

**B. Does not Qualify as Planned Action:** The application is not consistent with the criteria of Ordinance 2021-002, and does not qualify as a Planned Action project for the following reasons:

Projects that fail to qualify as Planned Actions may incorporate or otherwise use relevant elements of the Planned Action EIS, as well as other relevant SEPA documents, to meet their SEPA requirements. The SEPA Responsible Official may limit the scope of SEPA review for the non-qualifying project to those issues and environmental impacts not previously addressed in the Planned Action EIS.

**SEPA Process Prescribed:**

**C. Responsible Official Signature**

| | |
|---|---|
| Signature: | |
| Date: | |

# EXHIBIT B-2 MITIGATION DOCUMENT

A Mitigation Document is provided in this Exhibit B-1 to establish specific mitigation measures based upon significant adverse impacts identified in the Planned Action EIS. The mitigation measures in this Exhibit B-1 shall apply to Planned Action Project applications that are consistent with the Alternative range reviewed in the Planned Action EIS and which are located within the Planned Action Area (see Exhibit A).

Where a mitigation measure includes the words "shall" or "will," inclusion of that measure in Planned Action Project application plans is mandatory in order to qualify as a Planned Action Project. Where "should" or "would" appear, the mitigation measure may be considered by the project applicant as a source of additional mitigation, as feasible or necessary, to ensure that a project qualifies as a Planned Action Project. Unless stated specifically otherwise, the mitigation measures that require preparation of plans, conduct of studies, construction of improvements, conduct of maintenance activities, etc., are the responsibility of the applicant or designee to fund and/or perform.

The City's SEPA Responsible Official's authorized designee shall determine consistency with this mitigation document.

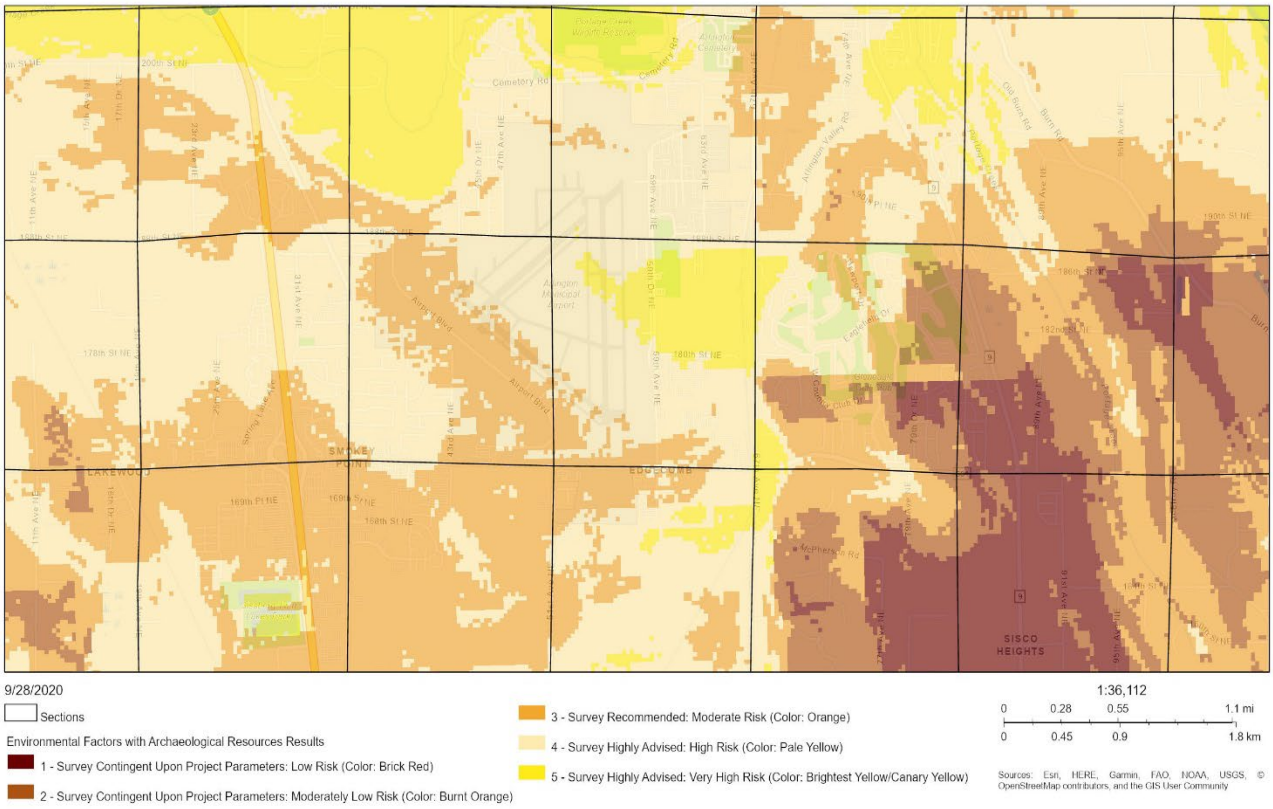
## Natural Environment

1. Planned Actions shall be consistent with subarea plan dimensional and development standards including maximum impervious coverages.
2. Planned Actions shall be consistent with the relocation of Edgecomb Creek and associated habitat improvements.
3. Planned Actions shall implement required street frontages identified in the Arlington Complete Streets Program, including landscaping and green infrastructure.
4. Planned Actions may incorporate green stormwater retrofits that provide water quality benefits beyond standard requirements by code.

## Cultural Resources

5. Within shoreline jurisdiction, Planned Actions must be consistent with cultural resources policies and regulations.
6. Planned Action notices shall be sent to DAHP and tribes (Snohomish Tribe, Stillaguamish Indian Tribe, and Tulalip Tribes) for each application consistent with Section G of the ordinance.
7. If DAHP predictive model maps location as high to very high probability (Map B-1.1):
    a. If cultural resources survey not previously completed, conduct cultural resources survey including subsurface testing where feasible and documentation of historic (i.e. 50 years old or older) built environment in advance of construction. Survey report will include inadvertent discovery plan (IDP).
    b. If cultural resources survey of the location completed more than 10 years ago, an updated report including IDP may be needed.
    c. If cultural resources survey of the location completed within past 10 years, prepare an IDP.
8. If DAHP predictive model maps location as low to moderate probability (Map B-1.1):
    a. If cultural resources survey not previously completed, conduct cultural resources desktop review and field reconnaissance including documentation of historic (i.e. 50 years old or older) built environment in advance of construction. Report will include inadvertent discovery plan (IDP).
    b. If cultural resources review completed for the location more than 10 years ago, an updated desktop review including IDP may be needed.
    c. If cultural resources survey of the location completed within past 10 years, prepare an IDP.
9. Where required under Mitigation Measures 7 and 8, Planned Actions shall prepare Inadvertent Discovery Plans as a condition of project approval.
10. The City may condition Planned Actions according to the results of required reviews under Mitigation Measures 7 and 8.

**Map B-1.1 Cultural Resources Probability Department of Archaeology and Historic Preservation**




## Land Use and Aesthetics

11. Planned Actions shall be consistent with the AMC development standards and guidelines for the CIC.
12. Planned Actions shall implement design standards specific to industrial areas and development types.

## Transportation

13. See Exhibit B-3.

## Public Services

14. Planned Actions shall demonstrate consistency with crime prevention through environmental design principles through compliance with CIC development standards and guidelines.
15. Planned Actions shall pay applicable impact fees per Chapter 20.90 for parks and schools.
16. A Planned Action shall provide the common and private open space required per dwelling in the Arlington Municipal Code.

## Utilities

17. Planned Actions shall meet City standards for adequate water and sewer service, pay applicable general facility charges, and incorporate water and sewer infrastructure improvements in street frontage improvements as appropriate.
18. Planned Action shall implement the required stormwater manual and implement necessary stormwater improvements. If a regional stormwater facility is approved by the City, an applicant may request or the City may condition development to pay a fee based on the area of new and replaced impervious surface subject to the applicable stormwater management manual in place at the time of application.

# EXHIBIT B-3 ADDITIONAL MITIGATION REQUIREMENTS & PROCEDURES

## Transportation

### *Frontage Improvements*

A. When a property redevelops and applies for permits, frontage improvements (or in-lieu contributions) and right-of-way dedications if needed are required by the Arlington Municipal Code (AMC 20.56.170).

B. If right-of-way (or an easement) is needed, it also must be dedicated to the City by the Planned Action Application property owner.

C. Planned Action applicants may request and the City may consider a fee-in-lieu for some or all of the frontage improvements that are the responsibility of the property owner consistent with criteria in AMC 20.56.170 and agreements pursuant to RCW 82.02.020 or other instrument deemed acceptable to the City and applicant.

### *Mitigation Fees*

D. Areawide Improvements: Implementation of improvements identified in Table B.3-1 shall occur through a SEPA fair share fee program such that new development contributes its share of the cost for these projects.

E. Cost Basis: Unless amended, or replaced with a transportation impact fee, mitigation fees consistent with the proportionate share of costs shall be applied to planned action applications. This fee shall be payable in addition to the impact fee in AMC Chapter 20.90 until such time as the improvements in Table B.3-1 are incorporated into the City's impact fee basis.

F. A Planned Action's trips calculated per Section 4.D(3)(d) will be used to determine a development's demand and mitigation payment.

G. Mitigation Fee Payable at Permit Issuance: The mitigation fee shall be payable at the time of building permit issuance.

H. The Planned Action Share Transportation Fees will be incorporated into the City master fee schedule. Fees shall be subject to biennial review to affirm the cost basis including a construction cost index or an equivalent as determined by the City.

I. Should the State of Washington develop capital improvements that are scheduled in addition to the listed mitigation in Table B.3-1, the City may collect a fair share cost of such improvements to the extent the improvements add capacity to address growth.

### *Transportation Demand Management*

J. Each Planned Action shall demonstrate consistency with requirements for Commute Trip Reduction (AMC Chapter 10.80). The City may condition Planned Actions to provide for transportation demand management measures to assist in meeting City levels of service and concurrency.

K. Each Planned Action shall provide for electric vehicle infrastructure (AMC Chapter 20.44.098).

**Table B.3 -1. Summary of Mitigation and Action Alternative Pro-Rata Cost**

| Location | Improvement | Estimated Total Cost (Million $)[1] | Existing Intersection Vehicle Volumes[2] | 2040 Action Alternative 2 Intersection Vehicle Volumes[2] | Total Volume Increase[3] | Percent Pro-Rata Share[4] | Pro-Rata Cost (Million $)[5] |
|---|---|---|---|---|---|---|---|
| SR 531 between 43rd Avenue NE and 67th Avenue NE | Widening SR 531 from 2 to 4-lanes with intersection improvements such as roundabouts at major intersections. Multiuse paths constructed along SR 531 | $39.3 | 10,660 | 14,355 | 3,695 | 25.7% | $10.1 |
| SR 531 between 67th Avenue NE and SR 9 | | $45.0 | 3,660 | 5,780 | 2,120 | 36.7% | $16.515 |
| 67th Avenue NE/188th Street NE | Installation of traffic signal and railroad crossing improvements | $3.1 | 1,120 | 1,770 | 650 | 36.7% | $1.138 |
| I-5/SR 531 Interchange | Specific intersection improvements are being reviewed with the City of Arlington as part of a development application | TBD | 8,505 | 10,425 | 1,920 | 18.4% | TBD |
| Smokey Point Blvd/SR 531 | | TBD | 4,480 | 5,260 | 780 | 14.8% | TBD |
| **Total** | | **$87.4** | | | | | **$27.753** |

Source: Transpo Group, 2020

TBD = To be determined when the specific improvement is identified.

1. SR 531 43rd Avenue NE to 67th Avenue NE project cost based on WSDOT published as of September 25, 2020 https://wsdot.wa.gov/projects/sr531/43rd-ave-67th-ave/home. SR 531 67th Avenue NE to SR 9 project cost based on City of Arlington Six-Year Transportation Improvement Program 2019-2024. Intersection improvement cost 67th Avenue NE/188th Street NE based on estimates prepared by Transpo Group.
2. Volumes for SR 531 are total entering volumes for the major intersections.
3. 2040 Action Alternative 2 intersection vehicle volumes – existing intersection vehicle volumes
4. Project trips / 2040 Action Alternative intersection vehicle volumes.

## EXHIBIT B-4 APPLICABLE REGULATIONS AND ADVISORY NOTES

**In addition to the AMMIC Subarea Plan goals and policies and the Arlington Land Use Code development regulations, the following regulations may apply. All applicable local, state, and federal requirements shall be met regardless of whether they are highlighted in this Exhibit or not.**

## Natural Environment

Development and redevelopment projects within the study area that have the potential to impact environmentally sensitive natural resources will require compliance with federal, state, and local regulations. Mitigation sequencing to avoid, minimize, and mitigate environmental impacts is typically required for all applicable permitting reviews and authorizations. The table below provides a regulatory permit matrix for actions requiring local, state, and federal authorizations. Appropriate mitigation measures specific to project alternatives will need to be proposed when alternatives are farther along in the planning process. This may include preservation, enhancement, and restoration of wetland and marine shoreline buffer.

**Table B.4-1. Environmental Regulations**

| Jurisdictional Agency | Regulations/Authorizations |
|---|---|
| City of Arlington | Pre-application submittal conference<br>SEPA Determination (No Action Alternative) Planned Action Consistency Determination (Action Alternatives)<br>Critical Areas review<br>City of Arlington Stormwater Code Compliance |
| Washington State Department of Ecology | CWA Section 401 Water Quality Certification<br>NPDES Construction Stormwater General Permit<br>Coastal Zone Management Act Consistency Certification |
| Washington Department of Fish and Wildlife | Hydraulic Project Approval (HPA) |
| U.S. Army Corps of Engineers | CWA Section 404 Clean Water Act<br>CWA Section 10 Rivers and Harbors Act<br>Requires Compliance with:<br>Section 7 of the Endangered Species Act<br>Section 106 of the Historic Preservation Act<br>Magnuson-Stevens Act |

*Sources: City of Arlington Municipal Code; Herrera 2020.*

## Land Use and Aesthetics

Arlington's Municipal Code contains regulations that help to ensure land use compatibility.

- Title 20 Land Use Code.
- Arlington Design Standards (Chapter 20.46 AMC).
- Arlington Shoreline Master Program (SMP).
- Airport Master Plan: contains regulations applicable to Flightline zone areas.

## Cultural Resources

In terms of historic and cultural resources the following local, state, and federal laws or rules apply:

- Arlington's SMP includes policies and regulations that would require appropriate cultural review by tribal and other agencies.

- State funded capital projects require Governor's Executive Order 0505 review. Implementation of the Executive Order requires all state agencies implementing or assisting capital projects using funds appropriated in the State's biennial Capital Budget to consider how future proposed projects may impact significant cultural and historic places.
- Section 106 of the National Historic Preservation Act requires that each federal agency identify and assess the effects its actions may have on historic buildings.

## Transportation

The following regulations address transportation:

- Travel Demand Management (TDM): Washington State Commute Trip Reduction (CTR) law requires employers with 100 or more employees and located in high-population counties to implement TDM programs.
- Arlington Complete Streets Program
- Arlington Transportation Improvement Program and Capital Improvement Program
- The following regulations and standards:
  - AMC Chapter 10.80 - Commute Trip Reduction
  - AMC Chapter 20.56 - Streets and Sidewalks
  - Chapter 20.90 - Concurrency and Impact Fees
  - Arlington Engineering Standards
  - AMC Chapter 20.44.098 – Electric Vehicle Infrastructure

## Public Services

The following regulations address public services:

- Comprehensive Plan – Addresses levels of service and capital improvements for fire, police, and parks. This is updated every eight years with the Comprehensive Plan.
- Title 15 Fire – Includes requirements for fire suppression.
- Parks and Recreation Master Plan– Establishes a plan for 2016-2023 including capital projects.
- Arlington School District Levy 2020 – Addresses Capital Replacement projects to ensure proper function of current schools.

## Utilities

### Water

When evaluating new construction, Arlington Public Works and Utilities Department personnel determine the ability of the water system to meet fire flow requirements at that location with a minimum of 20 psi residual pressure throughout the distribution system. If the water system cannot provide the required fire flow for the specific project, the developer is required to revise building construction and/or make the necessary improvements to the distribution system to meet the project's fire flow requirements as established by the City Fire Chief. The available fire flow will be determined by the City's engineering staff using the water system hydraulic model.

AMC Chapter13.08. includes provisions for service connections and mains to be upgraded by developers during redevelopment if required to meet engineering design and construction standards. Chapter 13.08. also includes provisions for installation of pumps if required to achieve adequate pressure during peak demands.

### Wastewater

AMC Chapter 13.36 includes provisions for wastewater service connections and extensions when existing connections are inadequate or sewer mains are not present along the frontage of a property.

### Stormwater

AMC Chapter 13.28 includes provisions that require redevelopment to meet stormwater management requirements of the Stormwater Management Manual for Western Washington, which requires low impact development BMPs, flow control, and water quality treatment. Under all the alternatives these requirements are expected to result in a net improvement in the quality of stormwater that is discharged to the Stillaguamish River and Quilceda Creek via ditches, Hayho Creek, Westphal Creek, Portage Creek, Prairie Creek and Edgecomb Creek.