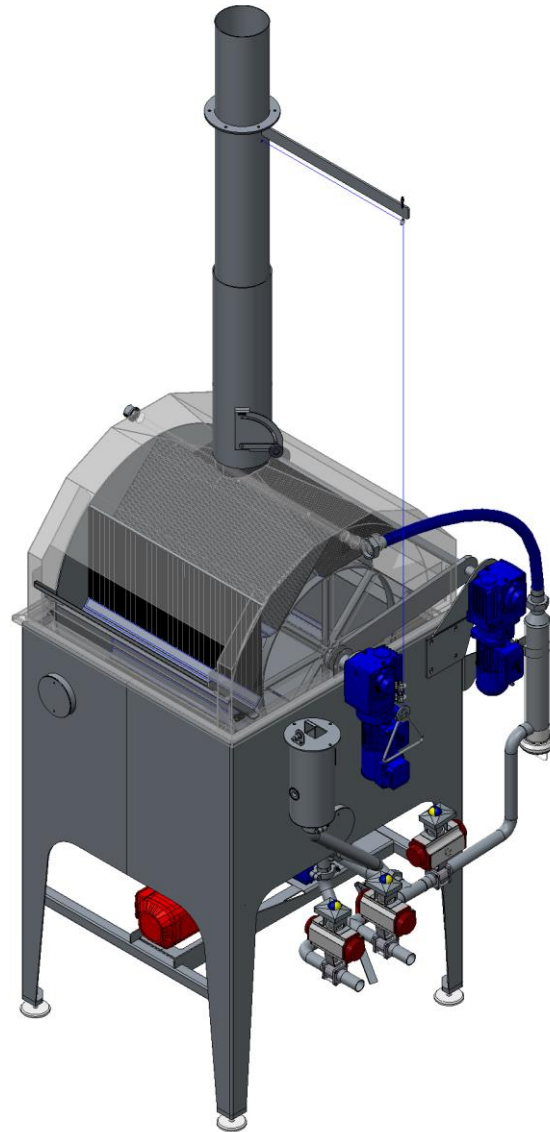


# Starwheel Fryer System



## Installation, Operation and Maintenance Manual



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### Manual Revision Log

REV #	DATE	CHANGE DESCRIPTION	PG # MODIFIED	BY
0	3/8/23	Original Release		TNT

PPM Technologies reserves the right to alter at any time, without notice and without liability or other obligations on its part, materials, equipment specifications, and models. PPM Technologies also reserves the right to discontinue the manufacture of models, parts, and components thereof.

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# 1 INTRODUCTION

Thank you for buying your equipment from PPM Technologies. This manual will help you to understand how your equipment operates and what is required to maintain peak performance. Please read it thoroughly and keep it on file for reference. Your satisfaction is very important to us. Please direct any comments, questions or concerns to our Service Department.

Date Purchased: \_\_\_\_\_  
Serial No.: \_\_\_\_\_  
Factory Order No.: \_\_\_\_\_  
General Arrangement Drawing No.: \_\_\_\_\_

## 1.1 SAFETY INSTRUCTIONS



**WARNING:** PPM Technologies is not liable for any damage or reduced performance that may occur as a result of improper equipment assembly and installation, or due to unauthorized alterations. Such actions will void any and all warranties.



**WARNING:** These instructions and safety precautions must be followed. There is danger of electrical shock to the operator.



**WARNING:** The unit must be properly grounded and verified at installation.



**WARNING:** The electrical power supply connection to the PPM-supplied unit must be made through a customer-supplied safety disconnect switch. Incorporation of an emergency stop may also be required, according to local codes.



**CAUTION:** Local safety codes and regulations must be considered when installing and/or operating this equipment.



Product safety labels must be highly visible on the equipment. Check visibility regularly. If safety labels need replaced, contact PPM Technologies for an additional supply, free of charge.



Supporting information that may be attached (e.g., drawing) take precedence over corresponding information printed in this manual.

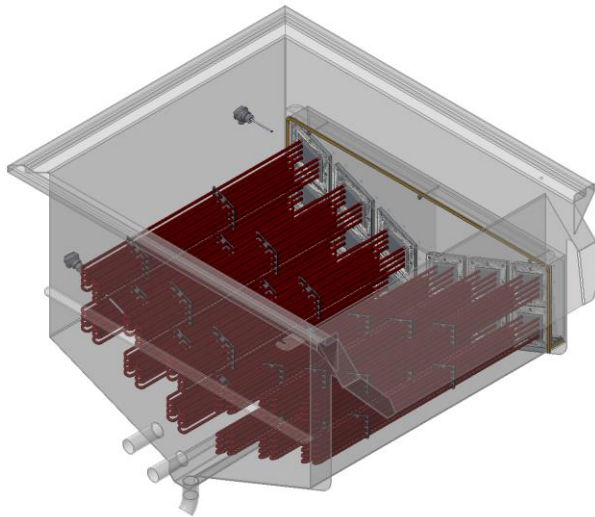
<p><b>WARNING!</b></p>	<p>Hot metal surfaces. Can cause severe burns. Do not touch metal surfaces during or soon after operation.</p>	<p><b>WARNING!</b></p>	<p>Remove all water from fryer, filter and oil piping before start-up. Explosive steam from water in the oil could spray hot oil out of the fryer. You could suffer serious burns.</p>
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Safety is a basic factor in the maintenance and operation of Immersion Tube Fryers. Proper clothing, tools and methods of handling can prevent serious injury to you or a fellow worker. A number of safety precautions are listed throughout this manual. Please study and follow the precautions and insist that your coworkers do the same.

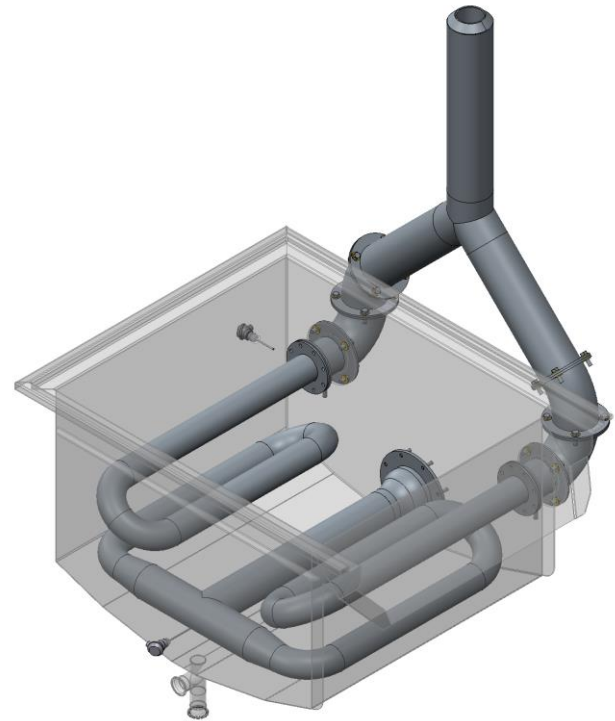
## 1.2 DESCRIPTION

The PPM Starwheel Frying System provides gentle handling and uniform frying of many different snack products. From pellet and extruded snacks, to nuts and tortilla chips. With adjustable frying times from 5-45 seconds and a compartmentalized wheel design, frying is precisely controlled.

The Starwheel Fryer is available in both electric (see **Figure 1**) and gas heating (see **Figure 2**) options. Electrical versions use modular heating elements that allow precise control of heat output. Gas heating options use immersion tubes and a special burner system to heat the oil and maintain temperature of the frying oil. The high temperature of the oil is enough to cook the product and vaporize moisture contained inside the product. This creates a crunchy, oily snack that customers desire for snack foods.



**Figure 1**



**Figure 2**

## 2 INSTALLATION

### 2.1 GENERAL REMARKS

#### 2.1.1 SUPERVISION

Purchases of one or more PPM machines may in certain cases include installation supervision and commissioning in the order; refer to the order confirmation. This is also possible even if this is not included in the order but is then available at a fixed daily cost plus remuneration of all traveling and subsistence expenses.

This service then comprises:

- Instructions to installation staff.
- Checking of the finished installation.
- Instruction and training of your production personnel.

The physical installation of machines/peripheral equipment/media or product development is not included.

#### 2.1.2 PURCHASER RESPONSIBILITIES

- All permits, charges and taxes.
- All import costs (customs etc.).
- Alterations to existing equipment and/or buildings.
- Building workers/installation personnel.
- Unloading, transport to the destination, weighing or fixing.
- Lubrication of bearings.
- Checking that all protective devices are correctly installed.
- Electrical installation and controls of the same.

#### 2.1.3 INSTALLATION RESPONSIBILITY

The entire installation of machinery and connection of media is to be done by qualified personnel. Only in those cases when PPM's own personnel or personnel contracted by PPM have undertaken this work, will PPM accept responsibility for the work done.



**WARNING: PPM Technologies is not responsible for damage or personal injury resulting from improperly designed or constructed supports. Installation of the Fryer on improperly designed or constructed supports will void any and all warranties.**

The customer is responsible for following all local, state, or other codes and emission regulations. Compliance with those regulations is the sole responsibility of the customer.

PPM recommends the use of a licensed HVAC contractor for both the steam and combustion exhaust systems.

#### 2.1.4 FIRE SUPPRESSION SYSTEM



**WARNING: FIRE SUPPRESSION MUST BE INSTALLED IN THE FRYING SYSTEM. THE CUSTOMER IS RESPONSIBLE FOR FOLLOWING ALL LOCAL, STATE AND OTHER CODES. THE SYSTEM MUST COMPLY WITH ALL CODES AND BE APPROVED BY THE LOCAL FIRE MARSHAL. YOUR WARRANTY AND INSURANCE WILL BE DENIED IF A PROPER SYSTEM IS FAILS TO PERFORM CORRECTLY OR IS NOT INSTALLED.**

## 2.2 MECHANICAL

- When lifting the fryer, ensure that it is lifted only from approved lifting points which include any part of the frame.
- Perform the necessary pipe routing in order to allow the filling of the tank with water and the drainage of water from the drainage point(s) to an intended site.
- Check that the motor gear units are filled with the oil type and quantity recommended by the motor manufacturer (see separate instructions). Verify that vents are installed according to the manufacturer instructions.
- The steam exhaust should be connected to a venting system which can be controlled to maintain a steam bed over the oil.
- The combustion exhaust should NOT be connected to a powered exhaust fan. Connecting to an exhaust blower will affect the combustion and could lower the efficiency of the combustion system.
- The combustion exhaust should be vented using a flue system which naturally drafts the combustion gases.



**CAUTION:** The Starwheel Fryer has a high center of gravity. Ensure that it is properly supported when lifting with straps so that it will not tip over, potentially causing damage or personal injury.

## 2.3 ELECTRICAL

- Perform electrical connection of the motor in accordance with the instructions on the lid of the junction box. TO BE DONE BY A QUALIFIED ELECTRICIAN. Always use a motor protector.
- Check that the correct voltage is connected to the motor.
- If there is risk of water condensing in the junction box, fit a drainage pipe.
- Check the direction of rotation of all motors



**WARNING:** The electrical power supply connection to the PPM Technologies-supplied control must be made through a customer-supplied disconnect switch which must be mounted next to the controls.



**CAUTION:** The conductor, between the Immersion tube fryer and control panel must be of sufficient size to carry the current designated on the equipment nameplate.



**CAUTION:** Be certain that the equipment is properly grounded.



**WARNING:** PPM Technologies is not responsible for damage or personal injury resulting from improperly designed or constructed supports. Installation upon improperly designed or constructed supports will void any and all warranties.



**CAUTION:** Do not make any alterations to the equipment without first consulting PPM Technologies. PPM Technologies will not assume any responsibility for poor system performance or mechanical failure as a result of unauthorized alterations to the equipment. Such actions will void any and all warranties.



**CAUTION:** Local safety codes and regulations must be considered when installing and/or operating this equipment.

**Disclaimer**

PPM and its agents to ensure the accuracy and reliability of the information contained in this reference guide have put every reasonable effort forth. However, neither PPM, its agents, nor its consultant(s) make any representation, warranty, or guarantee in connection with the publication of these recommended methods and procedures. PPM hereby disclaims any reliability for loss or damage resulting from their use; for the violation of any federal, state, county, or municipal regulations with which these recommended methods and procedures may conflict; or for the infringement of any patent resulting from use of these recommended methods and procedures. These handling and installation instructions are not intended to preclude normal safety procedures, which should be followed to prevent injury to personnel. SAFE INSTALLATION PROCEDURES SHALL BE ENTIRELY THE RESPONSIBILITY OF THE INSTALLER.

IN NO EVENT SHALL PPM BE LIABLE FOR CLAIMS OF PERSONAL INJURY OR FOR SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE, LOSS OF USE OF THE IMMERSION TUBE FRYER OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF THE SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME COST, CLAIMS OF CUSTOMERS OF THE OWNER FOR SUCH DAMAGES, OR FOR DAMAGE TO PROPERTY, WHETHER SUCH CLAIM SHALL BE FOR BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE OR STRICT LIABILITY, AND WHETHER SUCH CLAIM ARISES OUT OF OR RESULTS FROM THIS LIMITED WARRANTY, OR EXPRESS OR IMPLIED WARRANTIES, OR FROM THE DESIGN, MANUFACTURE, SALE, DELIVERY, RESALE, INSTALLATION, TECHNICAL DIRECTION OF INSTALLATION, INSPECTION, REPAIR, OPERATION OR USE OF THE CONVEYOR OR SAFETY CABLES.

All specifications are subject to change without notice.



## 3 OPERATION

### 3.1 CHECKLIST BEFORE OPERATION

- Check that lubrication has been performed in accordance with the maintenance instructions
- Check that the fryer and the filter are clean and dry
- Check that all access panels and drain valves are closed
- Check that all guards are in place and secure
- Check that no tools or other foreign objects are in or on the machine and that all screws and fasteners are in place and tightened



**CAUTION: Make sure there is no water left in the fryer pan, pipes or drains when you start heating the oil. The water will turn to steam and the pressure created to lead to hot oil being sprayed out of the fryer and lead to serious burns.**

### 3.2 START-UP PROCEDURE

- Close all manual drain valves and check that all other valves are close
- Put the control panel into manual mode
- Close the fryer hood

**The system is designed and intended for continuous operation. The system is controlled and run by a PLC and OIT**

- Start the filling and preheat procedure by selecting **Auto Mode** and pressing **System Start**
- Select **Filling Mode**: the pump will start and fill the fryer tank up to the preheating level, which is adjusted below the operating level to allow the oil to expand during heating. Once that level is reached, the supply valve will close and the pump turns off.
- Start the system heating. The oil should be heated gradually, stopping at a temperature of 185-205°F to allow remaining water in the system to boil off.
- Once the system reaches temperature, the remaining equipment in the line can be started and frying can begin.

### 3.3 PRODUCTION INSTRUCTIONS

**Note: Never adjust the overheating protection above 445°F**

- The recipe screen will have multiple settings for oil level, oil temperature, cook time and many other parameters
- When you start with a new type of product, begin with a low feed rate and increase the amount slowly and watch the result. If too much product is fed into the fryer it can be stuck in the frying wheel and the quality will be negatively affected. The product can also inhibit oil flow to all the product which will also affect the quality.
- Adjust the frying time and temperature so that the desired result is achieved. Note the settings and save them to a recipe.
- Adjust the steam damper so that a protective steam barrier covers the oil surface in the fryer, to protect against oxidation. A small amount of steam will come out the hood openings. This indicates that the whole hood is fill with steam.

### 3.4 FRYER DRAINING

Once product is done being ran through the fryer, the heating system and the belts can be turned off by pressing the **System Stop** HMI. The oil should then be allowed to cool until the temperature drops below 180° F. Once that temperature has been reached, the day tank valve can be opened and the oil can be pumped back to the day tank using the **Drain** function. Once the oil level has dropped low enough that the pump starts to draw in air, the pump should be turned off IMMEDIATELY. Not all of the oil is possible to be pumped back to the day tank. The remaining amount of oil can be drained using the manual drain valves located under the pan and in the piping.

### 3.5 EMERGENCY SHUTDOWN

The Emergency Stop button should be pressed and, if a fire is present, the steam baffle should be closed.



**CAUTION: DO NOT LIFT THE HOOD IF THERE IS A FIRE!**

### 3.6 FRYING OIL TROUBLESHOOTING GUIDE

Dark oil	Smoke	Fast oil deterioration	greasy product	Sticky product	Frothing	
•	•	•		•	•	1. Overheating. Check temperature controller.
•	•	•			•	2. Contaminated oil. Filter oil continuously.
•			•			3. Fryer not completely cleaned of cooking residues. Ensure that all surfaces are thoroughly cleaned. <b>Review recommended cleaning procedure in cleaning and maintenance section of your fryer manual.</b>
•	•	•		•		4. Insufficient oil turnover. Maintain a minimum quantity of oil in the fryer, or increase the quantity of the product.
	•	•	•		•	5. Excess moisture in the product. Remove surplus water before frying.
	•				•	6. Rapid oil breakdown. Consult with your oil supplier to find a more stable oil.
•		•		•		7. Oil not stable enough for prevailing conditions. Consult with your oil supplier.
		•				8. Oil in contact with copper or brass. Remove any copper or brass from contact with oil.
			•			9. Frying temperature low. Increase frying temperature. Also check temperature controller operation.
			•			10. Poor frying oil condition. Replace old oil with fresh.
			•			11. Cleaning compound still in fryer. Rinse fryer thoroughly after caustic cleanser and neutralize before draining. <b>Review recommended cleaning procedure in cleaning and maintenance section of your fryer manual.</b>

## 4 CLEANING AND MAINTENANCE

### 4.1 RECOMMENDED CLEANING PROCEDURE

The following cleaning procedures are effective for most typical food processing applications. If you encounter a stubborn cleaning problem, please contact PPM for assistance.

An effective cleaning program is essential to the efficient operation of your fryer. It will help to maintain oil quality, allowing you to consistently produce the volume of high-quality products you require.

The most common procedure for cleaning fryers is the boil-out method which employs a heavy-duty caustic (or alkaline) cleaning product. Low foaming type should be used if using CIP spray valves in the hood. If using granular type, mix with solution before adding to the fryer.



**CAUTION: Always wear proper protective clothing when cleaning fryers. Cleaning solution is extremely caustic and will cause severe chemical burns if it gets onto your skin or into your eyes. Required clothing includes, but is not limited to, full face protection, gloves and complete overalls. Follow the cleaning compound suppliers' recommended safety procedure.**

#### **Do not use cleaner on any electrical components**

- Allow the pan to cool down to within 70° F of the water that will be used to clean.
- Rinse all debris out of the fryer, pipes and filters with hot water.
- Using a Teflon scraper, loosen built up material that cannot be removed by spraying alone.

**DO NOT USE A STEEL SCRAPER.**

- Lower the hood and fill the fryer with water, add the cleaning agent.

**It is important to follow the cleaning compound supplier's recommendation as to the amount of cleaning agent to use.**

- Start the system on cleaning mode which will start the circulation pump, belts, filter system and augers.
- Add water as need to maintain the proper level.
- Start heating the solution to a temperature of 160-175° F.
- After verifying that the hood is down, the CIP nozzle valve can be opened allowing the cleaning solution to be go through the spray nozzles cleaning the hood and the pan frames.
- Let the cleaning mode run for 20-30 minutes (consult cleaning compound supplier information).
- During this time, the outside of the fryer may be cleaned.
- Once the cleaning cycle has been completed, the fryer can be drained by using the same drain valve(s) as used in the final processes of draining oil from the fryer.

**CAUTION: The heavy-duty caustic (or alkaline) cleaning product is very toxic!**

- Repeat the cleaning with water only, until the fryer is free from the cleaning product.
- The outside can be rinsed during the water-only cleaning cycle.
- Check the pH level of the fryer. If the reading is above 7, the fryer should be drained and refilled with clean water.
- Once rinsing is complete, the fryer can be drained and dried to be ready for production.

**DO NOT LEAVE THE FRYER SITTING WITHOUT OIL FOR VERY LONG. SOME RUST MAY APPEAR ON ANY SURFACE, EVEN STAINLESS SURFACES. NON-STAINLESS SURFACES MAY BECOME VERY RUSTY IF NOT SPRAYED DOWN WITH OIL AND LEFT IN THE OPEN AIR FOR VERY LONG.**

## **4.2 STARWHEEL FRYER MAINTENANCE**



**WARNING: Before performing any maintenance, the electrical power supply must be disconnected at the safety disconnect switch.**

### **4.2.1 MAINTENANCE INTERVAL: DAILY**

- Cleaning as usual during section 4.1
- Check the entire fryer for any damage or wear and tear

### **4.2.2 MAINTENANCE INTERVAL: WEEKLY**

- Lubricate any bearings with grease nipples and seals
- Full boil-out procedure
- Function and position of switches, RTD and level sensors

### **4.2.3 MAINTENANCE INTERVAL: MONTHLY**

- Check oil levels in all gear units
- Check drum bushings

### **4.2.4 MAINTENANCE INTERVAL: ANNUALY**

- Change the oil in the gear units

## 4.3 CAUSTIC SODIUM INFORMATION

### 4.3.1 PRODUCT INFORMATION

- Trade name: **Caustic Sodium; Caustic Soda**
- Chemical/Technical Term: **Sodium Hydroxide**

### 4.3.2 SUMMARY OF RISKS



**DANGER: Causes eye and skin burns. Causes digestive and respiratory tract burns.**

**Target Organs: Eyes, skin, mucous membrane**

- Eyes Causes eye burns. May cause blindness. May cause chemical conjunctivitis and corneal damage.
- Skin Causes skin burns. May cause deep, penetrating ulcers of the skin.
- Ingestion May cause sever and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. Causes sever pain, nausea, vomiting, diarrhea and shock.
- Inhalation Irritation may lead to chemical pneumonitis and pulmonary edema. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Causes chemical burns to the respiratory tract.
- Chronic Prolonged or repeated skin contact may cause dermatitis. Effects may be delayed.

### 4.3.3 FIRST AID MEASURES

- Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately
- Skin In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
- Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
- Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
- Notes to Physician: Treat symptomatically and supportively.

### 4.3.4 FIRE FIGHTING MEASURES

- General Information
  - As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Contact with moisture or water may generate sufficient heat to ignite nearby combustible materials. Contact with metals may evolve flammable hydrogen gas.
- Extinguishing Media
  - Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers.
- Flash Point: Not applicable
- Autoignition Temperature: Not applicable
- Explosion Limits, Lower: Not available
- Upper: Not available
- NFPA Rating (estimated)
  - Health: 3
  - Flammability: 0
  - Instability: 1

### 4.3.5 ACCIDENTAL RELEASE MEASURES

- General Information
  - Use proper personal protective equipment as indicated in Section 8.
- Spills/Leaks

**CLEANING & MAINTENANCE**

- Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water on spilled substances or inside containers.

### 4.3.6 HANDLING AND STORAGE

- Handling
  - Wash thoroughly after handling. Do not allow water to get into the container because of violent reaction. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid ingestion and inhalation. Discard contaminated shoes. Use only with adequate ventilation.
- Storage
  - Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Corrosives area. Keep away from acids. Store protected from moisture. Containers must be tightly closed to prevent the conversion of NaOH to sodium carbonate by the CO<sub>2</sub> in air.

### 4.3.7 EXPOSURE CONTROLS, PERSONAL PROTECTION

- Engineering Controls
  - Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

- Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA – Final PELs
Sodium Hydroxide	2 mg/m <sup>3</sup> Ceiling	10 mg/m <sup>3</sup> IDLH	2 mg/m <sup>3</sup> TWA
Sodium Carbonate	None listed	None listed	None listed

- Personal Protective Equipment
  - Eyes: Wear chemical splash goggles and face shield
  - Skin: Wear butyl rubber gloves, apron, and/or clothing
  - Clothing: Wear appropriate protective clothing to prevent skin exposure
  - Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

### 4.3.8 PHYSICAL AND CHEMICAL PROPERTIES

- **Physical State:** Solid
- **Appearance:** white
- **Odor:** Odorless
- **pH:** 14 (5% aq soln)
- **Vapor Pressure:** 1 mm Hg @739 deg C
- **Vapor Density:** Not available.
- **Evaporation Rate:** Not available.
- **Viscosity:** Not available.
- **Boiling Point:** 1390 deg C @ 760 mmHg
- **Freezing/Melting Point:** 318 deg C
- **Decomposition Temperature:** Not available.
- **Solubility:** Soluble.
- **Specific Gravity/Density:** 2.13 g/cm<sup>3</sup>
- **Molecular Formula:** NaOH
- **Molecular Weight:** 40

### 4.3.9 STABILITY AND REACTIVITY

- **Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.
- **Conditions to Avoid:** Moisture, contact with water, exposure to moist air or water, prolonged exposure to air.

- **Incompatibilities with Other Materials:** Water, metals, acids, aluminum, zinc, tin, nitromethane, leather, flammable liquids, organic halogens, wool.
- **Hazardous Decomposition Products:** Toxic fumes of sodium oxide.
- **Hazardous Polymerization:** Will not occur.

#### 4.3.10 TOXICOLOGICAL INFORMATION

- **RTECS#:**
- **CAS# 1310-73-2:** WB4900000
- **CAS# 497-19-8:** VZ4050000
- **LD50/LC50:**
  - **CAS# 1310-73-2:**
    - Draize test, rabbit, eye: 400 ug Mild;
    - Draize test, rabbit, eye: 1% Severe;
    - Draize test, rabbit, eye: 50 ug/24H Severe;
    - Draize test, rabbit, eye: 1 mg/24H Severe;
    - Draize test, rabbit, skin: 500 mg/24H Severe;
  - **CAS# 497-19-8:**
    - Draize test, rabbit, eye: 100 mg/24H Moderate;
    - Draize test, rabbit, eye: 50 mg Severe;
    - Draize test, rabbit, skin: 500 mg/24H Mild;
    - Inhalation, mouse: LC50 = 1200 mg/m<sup>3</sup>/2H;
    - Inhalation, rat: LC50 = 2300 mg/m<sup>3</sup>/2H;
    - Oral, mouse: LD50 = 6600 mg/kg;
    - Oral, mouse: LD50 = 6600 mg/kg;
    - Oral, rat: LD50 = 4090 mg/kg;
- **Carcinogenicity:**
  - **CAS# 1310-73-2:** Not listed by ACGIH, IARC, NTP, or CA Prop 65.
  - **CAS# 497-19-8:** Not listed by ACGIH, IARC, NTP, or CA Prop 65.
- **Epidemiology:** No information found
- **Teratogenicity:** No information found
- **Reproductive Effects:** No information found
- **Mutagenicity:** See actual entry in RTECS for complete information.
- **Neurotoxicity:** No information found

#### 4.3.11 DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

#### 4.3.12 TRANSPORT CONSIDERATIONS

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name</b>	Sodium Hydroxide, Solid	Sodium Hydroxide Solid
<b>Hazard Class</b>	8	8
<b>UN Number</b>	UN1823	UN1823
<b>Packing Group</b>	II	II



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NOTES