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Middletown, CT 06457  
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**DATE:** 9/2/16                      **ADDENDUM CONSISTS OF 19 PAGES**  
(Including this Cover Sheet)

**PROJECT NAME:** Torrington, CT – WPCF Ballasted Flocculation System  
Preselection Bid No. BFS-003-092216

**SUBJECT:** Addendum No. 1

**FROM:** Wright-Pierce

**PROJECT NO.:** 13164D

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**\*REQUIRED\***

Confirmation of receipt of this addendum is required.  
Please sign below and either FAX to: (860) 343-9504 or E-MAIL to  
[brenda.strohm@wright-pierce.com](mailto:brenda.strohm@wright-pierce.com).  
Thank You.

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**NAME:** \_\_\_\_\_ **TITLE:** \_\_\_\_\_  
(Please print)

**SIGNATURE:** \_\_\_\_\_ **COMPANY:** \_\_\_\_\_

**ADDENDUM NO. 1**

**TO**

**CITY OF TORRINGTON  
CONNECTICUT**

**BIDDING AND CONTRACT REQUIREMENTS  
AND SPECIFICATIONS**

**FOR**

**WATER POLLUTION CONTROL FACILITY  
BALLASTED FLOCCULATION SYSTEM  
PRESELECTION BID NO. BFS-003-092216**

**September 2, 2016**



**Prepared By:**

**Wright-Pierce  
169 Main Street, 700 Plaza  
Middletown, Connecticut**

**Phone: 860-343-8297**

**Fax: 860-343-9504**

## ADDENDUM NO. 1

### CITY OF TORRINGTON, CONNECTICUT

#### WATER POLLUTION CONTROL FACILITY BALLASTED FLOCCULATION SYSTEM PRESELECTION BID NO. BFS-003-092216

As a point of clarification, it should be understood that the Contract Documents govern all aspects of the project. Informal discussions held during the Pre-Bid Conference or over the telephone are informational only. All official changes to the Contract Documents are made only by addenda. The following changes are hereby made a part of the Contract Documents.

#### GENERAL

1. The deadline for submitting questions about the meaning or intent of the Bidding Documents shall be 5pm on September 15, 2016. Question received after that time may not be answered. Questions should be submitted to:  
Ryan Bodnaruk  
Wright Pierce  
10 Dorrance Street, Suite 840  
Providence, RI 02903  
Email: [ryan.bodnaruk@wright-pierce.com](mailto:ryan.bodnaruk@wright-pierce.com)  
Telephone: 401-808-8302
2. The requirements for coagulant chemical have changed. Sodium aluminate is no longer the sole coagulant that will be allowed for the basis of the Bid. The Bid Form has been modified to allow for multiple aluminum based inorganic coagulants.

#### DRAWINGS

Not used.

#### SPECIFICATIONS

1. Section 00310 BID FORM **REPLACE** the entire Section 00310 BID FORM with the **ATTACHED** revised 00310 BID FORM (revised 9/2/2016).
2. Section 11200 – PART 3 EXECUTION/3.5 STARTUP, TESTING, AND COMMISSIONING/ Paragraph B/ Item 2. **DELETE** “During each test, the Manufacturer shall collect a 24-hr time-based composite sample of the influent flow which shall be tested for: total phosphorus, filtered total phosphorus, ortho-phosphorus, filtered ortho-phosphorus, total suspended solids, iron, total zinc, filtered zinc, turbidity, temperature, and pH.” And **REPLACE** with “During each test, the Manufacturer shall collect a 24-hr time-based composite sample of the influent flow which shall be tested for: total phosphorus, filtered total phosphorus, ortho-phosphorus, filtered ortho-phosphorus, total suspended solids, aluminum, total zinc, filtered zinc, turbidity, temperature, and pH.”

3. Section 11200 – PART 3 EXECUTION/3.5 STARTUP, TESTING, AND COMMISSIONING/ Paragraph B/ Item 3. **DELETE** “During each test, the Manufacturer shall collect a 24-hr time-based composite sample of the effluent flow which shall be tested for: total phosphorus, filtered total phosphorus, ortho-phosphorus, filtered ortho-phosphorus, total suspended solids, iron, total zinc, filtered zinc, turbidity, temperature, and pH.” and **REPLACE** with “During each test, the Manufacturer shall collect a 24-hr time-based composite sample of the influent flow which shall be tested for: total phosphorus, filtered total phosphorus, ortho-phosphorus, filtered ortho-phosphorus, total suspended solids, aluminum, total zinc, filtered zinc, turbidity, temperature, and pH.”.
4. Section 11200 – PART 3 EXECUTION/3.6 PERFORMANCE GUARANTEE/Paragraph B. **DELETE** “Performance Requirements: Subject to the provisions contained herein, and assuming iron based inorganic coagulants will be used as the primary coagulant in the ballasted tertiary treatment system, and assuming high molecular weight flocculants aid polymers are used, the Manufacturer shall provide a written guarantee that the ballasted flocculation tertiary treatment system will produce settled water effluent of a quality that will comply with the following criteria:” and **REPLACE** with “Performance Requirements: Subject to the provisions contained herein, and assuming aluminum based inorganic coagulants will be used as the primary coagulant in the ballasted tertiary treatment system, and assuming high molecular weight flocculants aid polymers are used, the Manufacturer shall provide a written guarantee that the ballasted flocculation tertiary treatment system will produce settled water effluent of a quality that will comply with the following criteria:”

## **QUESTIONS AND ANSWERS**

Q1: Request an extension to submit our proposal in response to the RFP for Torrington’s Phosphorus Removal Project.

A1: The Bid Date of September 22, 2016 cannot be extended.

## **ATTACHMENTS**

A1 – Section 00310 BID FORM (revised 9/2/2016)

A2 – Data Sheet Alum (Liquid Sodium Sulfate)

A3 – Data Sheet Liquid Sodium Aluminate

A4 – Data Sheet PACL\_EPIC WW58

*This Addendum consists of 19 pages, 4 pages in this document and 15 pages of attachments.*

**END OF ADDENDUM No.1**

SECTION 00310-BFBID FORM (Rev1)

PROJECT IDENTIFICATION: Water Pollution Control Facility Upgrade  
Ballasted Flocculation Tertiary Treatment System  
Preselection – Bid # BFS-033-092216

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THIS BID IS SUBMITTED TO: City of Torrington  
Engineering Department  
140 Main Street  
Torrington, Connecticut 06790

1. The undersigned Ballasted Flocculation Tertiary Treatment System Manufacturer proposes and agrees, if this Bid is accepted, to supply the equipment as specified or indicated in the Bid Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bid Documents.
2. The bid will remain subject to acceptance through December 31, 2017, OR for such period of time after that date the Ballasted Flocculation Tertiary Treatment System Manufacturer may agree to, in writing upon request of Owner and Engineer.
3. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the day of Bid opening.
4. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
  - (a) Bidder has examined copies of all the Bidding Documents and the following Addenda (receipt of all which is hereby acknowledged):

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____

- (b) Bidder acknowledges that his Bid will be rejected unless the Issuing Office has a record that the Bidder has purchased at least one set of paper Bidding Documents from the Issuing Office.
- (c) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- (d) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered on the Contract Documents and the written resolution thereof by Engineer is acceptable to the Bidder.

- (e) The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
  - (f) Bidder understands that the Owner reserves the right to reject any or all bids, if it is deemed in the best interest for the City of Torrington.
  - (g) The bid security attached is to become the property of the Owner in the event the Bidder does not sign a Purchase Order with the General Contractor awarded the subsequent Water Pollution Control Facility Upgrade Construction Contract, as liquidated damages for the delay and additional expense to the Owner caused thereby.
  - (h) BIDDER understands that if the Water Pollution Control Facility Upgrade Construction Contract is not awarded the City of Torrington will have no obligation to the selected Ballasted Flocculation Tertiary Treatment System Manufacturer.
  - (i) BIDDER understands that the selected Manufacturer's Ballasted Flocculation Tertiary Treatment system shall be used as the basis for design for the Ballasted Flocculation Tertiary Treatment System, that the Manufacturer shall assist the ENGINEER in preparation of the detailed design, and that the Manufacturer shall sign a Purchase Order with the General Contractor awarded the subsequent Water Pollution Control Facility Upgrade Construction Contract for the Total (Capital Cost) indicated in Bid Item No. 5A.
  - (j) BIDDER understands that the Equipment Capital Costs in Bid Form 5A shall be held constant through December 31, 2017. The Manufacturer may escalate these prices by the percent increase in the ENR Construction Cost Index between December 31, 2017 and the actual date that the purchase order is signed, as described in Section 00100-BF Instructions for Bidders
  - (k) BIDDER understands that in case of a discrepancy between unit prices proposed and extended totals, the unit prices will govern.
5. Bidder will complete the Work described in the Contract Documents for the following price(s):

**5.A CAPITAL COST**

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
1	Lump Sum	Supply and delivery of Ballasted Flocculation Tertiary Treatment System and Appurtenances, excluding Items 2 - 5, below.  The Sum of \$ _____ _____	\$ _____	\$ _____
Per Lump Sum				
2	Lump Sum	Spare Parts  The Sum of \$ _____ _____	\$ _____	\$ _____
Per Lump Sum				
3	Lump Sum	Shop Drawings  The Sum of \$ _____ _____	\$ _____	\$ _____
Per Lump Sum				
4	Lump Sum	Operation & Maintenance Manuals  The Sum of \$ _____ _____	\$ _____	\$ _____
Per Lump Sum				
5	Lump Sum	Services of Manufacturer's Representative as described herein, including supervision during installation, instruction, testing, and final acceptance.  The Sum of \$ _____ _____	\$ _____	\$ _____
Per Lump Sum				

TOTAL (CAPITAL COST): Total of Items 1 through 5 above.

\_\_\_\_\_ \$ \_\_\_\_\_  
 (Use Figures)

(Use Words)

**5.B OPERATION AND MAINTENANCE (O&M) COST**

(a) General Items:

Item No.	Item Description	Units	Value/Cost Design Flow 7.0 MGD (TP < 0.29mg/l)	Value/Cost Design Flow 7.0 MGD (TP < 0.1 mg/l)
1	Total Effluent Phosphorus in system effluent	mg/l	<0.29 mg/l	<0.1 mg/l
2	Total System Power Consumption at specified flow	kWh/Day	_____	_____
3	Effluent Flushing (Plant) Water Consumption, if any.	Gallon/Day	_____	_____
4	Seal Water Consumption, if any.	Gallon/Day	_____	_____
5	Waste Solids Flow Rate at specified conditions	% of Flow	_____	_____
6	Power Cost	\$/kWh	<u>\$0.140 (fixed)</u>	<u>\$0.140 (fixed)</u>
7	Labor Cost for System Maintenance & Repair	\$/Man-hour	<u>\$35.00 (fixed)</u>	<u>\$35.00 (fixed)</u>

Notes:

1. The fixed unit costs noted above for power and labor shall be used by the OWNER to evaluate costs over a 20-year life cycle based on 4% escalating cost per year.

(b) Coagulant Consumption:

Item No.	Item Description	Units	Value/Cost Design Flow 7.0 MGD (TP < 0.29mg/l)	Value/Cost Design Flow 7.0 MGD (TP < 0.1 mg/l)
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1	Required Aluminum Based Coagulant		_____
			\$1.85/Gal - Polyaluminum Chloride, EPIC WW58
2	Cost of Coagulant	\$/Gallon	\$2.45/Gal – Sodium Aluminate 38% sol \$0.92/Gal - Alum (commercial liquid aluminum sulfate)
3	Average aluminum based coagulant dosage required under specified conditions	mg/l	_____
4	Average aluminum dosage required under specified conditions	mg/L as AL	_____
5	Coagulant Specific Gravity (S.G.)		_____
6	Coagulant % solution		_____

(c) Polymer Consumption:

Item No.	Item Description	Units	Value/Cost Design Flow 7.0 MGD (TP < 0.29mg/l)	Value/Cost Design Flow 7.0 MGD (TP < 0.1 mg/l)
1	Required Emulsion Polymer	Type		
2	Cost of Polymer	\$/Gallon	Provide quote from third party vendor for delivery of 30 day supply to Torrington WPCF	
3	Average Polymer dosage required	Type	_____	_____

under specified conditions

		lb polymer / lb		
4	Polymer Solids Content (%sol)	polymer solution	_____	_____
5	Polymer Specific Gravity (S.G.)	-	_____	_____

(d) Ballast Consumption:

Item No.	Item Description	Units	Value/Cost Design Flow 7.0 MGD (TP < 0.29mg/l)	Value/Cost Design Flow 7.0 MGD (TP < 0.1 mg/l)
1	Required Ballast	Type	_____	
2	Bulk Density of Ballast	Lbs/ft <sup>3</sup>	_____	
3	Cost of Ballast	\$/Lb	Provide quote from third party vendor for delivery of 30 day supply to Torrington WPCF	
4	Average Ballast addition required under specified conditions	Lbs/Day	_____	_____

(e) Power Consumption:

Item No.	Item Description	Units	Value/Cost Design Flow 7.0 MGD (TP < 0.29mg/l)	Value/Cost Design Flow 7.0 MGD (TP < 0.1 mg/l)
1	Number of Trains On-line	#	_____ 1 _____	_____ 1 _____
2	Ballast Recirculation Pumps Operating	#	_____	_____
3	Ballast Recirculation Pumps Energy Consumption	kWh/yr	_____	_____

4	Coagulation Tank Mixers Operating	#	_____	_____
5	Coagulation Tank Mixer Energy Consumption	kWh/yr	_____	_____
6	Reaction Tank #1 Mixers Operating	#	_____	_____
7	Reaction Tank #1 Mixer Energy Consumption	kWh/yr	_____	_____
8	Reaction Tank #2 Mixers Operating, in necessary	#	_____	_____
9	Reaction Tank #2 Mixer Energy Consumption, if necessary	kWh/yr	_____	_____
10	Ballast Recovery Systems Operating	#	_____	_____
11	Ballast Recovery System Energy Consumption	kWh/yr	_____	_____

(f) BIDDER acknowledges that this bid will be evaluated using Guaranteed Operation and Maintenance Values and Costs included in Paragraph 5.B.

(g) BIDDER acknowledges that Guaranteed Operation and Maintenance Values and Costs included in Paragraph 5.B must be guaranteed for the time periods described in Article 14 of the Instruction for Bidders (Section 00100).

**5.C ANCILLARY CONSTRUCTION COSTS**

(a) General Items:

1. GENERAL	Value
A. Tank wall thickness, exterior/interior/slab (in/in/in)	<u>18"/14"/24" (fixed)</u>
B. Cost of Placed and Formed Concrete ((\$/CY)	<u>\$1,000 (fixed)</u>
C. Coagulant Tank Dimension (L x W x SWD (ft)	_____

1. GENERAL	Value
D. Reaction Tank #1 Dimension (L x W x SWD), (ft)	_____
E. Reaction Tank #2 Dimension (L x W x SWD), if necessary, (ft)	_____
F. Clarifier Tank Dimension (L x W x SWD), (ft)	_____

Notes:

1. L=length, W=width, SWD=side water depth at peak flows of 25.76 mgd per train (inside dimensions).
2. The finished floor level across all tanks will be the same. The depth of the tanks for determining concrete quantities shall be set as 12 inch above the maximum water surface level in the Coagulation tanks.

(b) BIDDER acknowledges that this bid will be evaluated using Ancillary Construction Costs based on tanks sizes and costs included in Paragraph 5.C.

**5.D SYSTEM DESIGN CHARACTERISTICS**

1. GENERAL	Value
A. Total Number of Trains required (Note: OWNER requires two (2) channels)	
B. Max Hydraulic Capacity (mgd/train)	
C. Number of Ballast Recirculation Pumps per train (#)	
D. Ballast Recirculation Pump Horsepower (hp/pump)	
E. Number of Coagulant Mixers per train (#)	
F. Coagulant Mixer Horsepower (hp/mixer)	
G. Number of Reaction Tank Mixers per train (#)	
H. Reaction Tank Mixer Horsepower (hp/mixer)	
I. Ballast Recovery System Type	
J. Number of Ballast Recovery System(s), per train (#)	
K. Ballast Recovery System Horsepower (hp/system), if any	
L. Number of Clarifier Drives per train (#)	
M. Clarifier Drive Horsepower (#)	
N. Additional Proposed Equipment Type	
O. Additional Proposed Equipment Number per train	
P. Additional Proposed Equipment Horsepower (hp/unit)	

2. HEAD LOSSES THROUGH SYSTEM <sup>1</sup> :	
A. Number of Tanks Operation	1
B. At peak design flow (25.76-mgd)	
C. At max month design flow (13.30-mgd),	
D. At average design flow (7.00-mgd)	
E. At minimum design flow (3.25-mgd)	

<sup>1</sup> Headloss shall be defined as water surface elevation at start of coagulation tank minus the water surface elevation of common effluent channel (or required separation between invert of effluent launders and water surface elevation of common effluent channel).

**5.E DELIVERY SCHEDULE**

1. GENERAL	Duration
A. Preliminary Shop Drawings (weeks from Vendor selection)	_____
B. Start Pilot Testing (weeks from Vendor selection)	_____
C. Shop Drawings (weeks from Contractor Award)	_____
D. Equipment Lead Time (weeks from Shop Drawing Approval)	_____

6. Supplementary Information (To Be Included Separately on Manufacturer's Letterhead)

- a. Written description and manufacturer's literature of Ballasted Flocculation Tertiary Treatment System.
- b. Dimensioned plans and sections of proposed Ballasted Flocculation Tertiary Treatment System including number of tanks, tank widths, tank lengths, tank depths, type of level control, relative water surface elevations, and minimum relative elevations of all equipment to be supplied, location of equipment, arrangements, power distribution centers, control, and all other major system components. PIDs may be provided for controls and electrical systems.
- c. Dimensioned plans and sections of the proposed Ballasted Flocculation Tertiary Treatment System layout.
- d. Details including a written description of any specific equipment requirements (e.g., equipment required to be housed in a weather-tight enclosure, indoors, prevent submergence, etc.).
- e. Description and details of power distribution and control systems (control panel layouts and wiring schematics).
- f. Description of controls and sequence of operations.
- g. Equipment warranty.

7. Exceptions

If the Ballasted Flocculation Tertiary Treatment System Manufacturer takes no exception to specification section 11200-BF - Ballasted Flocculation Tertiary Treatment System as written herein, clearly indicate so in writing on Ballasted Flocculation Tertiary

Treatment System Manufacturer's letterhead. If the Ballasted Flocculation Tertiary Treatment System Manufacturer takes exception to one or more items in the specifications, clearly indicate the exception by referencing the specification section, article number, and reason for the exception. It is NOT acceptable to provide a scope of work as a substitution for this.

8. The following documents are attached to and made a condition of this BID:

(a) This Bid Form in its Entirety, with supporting data. The BF Manufacturer shall verify that each of the following items of this Bid Form are included:

1. \_\_\_\_\_ Acknowledgement of Addenda
2. \_\_\_\_\_ Table 5.A. completed in its entirety
3. \_\_\_\_\_ Table 5.B. completed in its entirety
4. \_\_\_\_\_ Table 5.C. completed in its entirety
5. \_\_\_\_\_ Table 5.D. completed in its entirety
6. \_\_\_\_\_ Table 5.E. completed in its entirety
7. \_\_\_\_\_ Fixed pricing for Maintenance Service Agreement completed in its entirety
8. \_\_\_\_\_ All Requested Supplementary Information
9. \_\_\_\_\_ A letter acknowledging the payment terms for the equipment stated in Section 11200, Item 1.10.
10. \_\_\_\_\_ A listing of any Exceptions taken by the BF Manufacturer

(b) Required Bid Security.

(c) Required Experience Statement (Section 00405-BF), with supporting data.

9. Communications concerning this Bid shall be addressed to:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_

Email: \_\_\_\_\_  
\_\_\_\_\_

RESPECTFULLY SUBMITTED on \_\_\_\_\_, 20\_\_

If BIDDER is

A Corporation

By \_\_\_\_\_ (SEAL)  
\_\_\_\_\_ (Corporation Name)

\_\_\_\_\_ (State of Incorporation)

By \_\_\_\_\_ (SEAL)  
\_\_\_\_\_ (Name of Person Authorized to Sign)

By \_\_\_\_\_ (Title)

(Corporate Seal)

Attest \_\_\_\_\_ (Secretary)

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_

A Partnership

By \_\_\_\_\_ (SEAL)  
\_\_\_\_\_ (Firm Name)

\_\_\_\_\_ (General Partner)

Business address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_

END OF SECTION



# Holland Company, Inc.

153 Howland Ave. Adams Massachusetts 01220 U.S.A. / 413-743-1292 / www.hollandcompany.com

## LIQUID ALUMINUM SULFATE

### Aluminum Sulfate Hydrate - Basic

CAS #: 17927-65-0

Certified by NSF as meeting NSF/ANSI Standard 60 for Water Treatment Chemicals

Complies with current AWWA Standards for Aluminum Sulfate – Liquid

**PRODUCT DESCRIPTION** • Liquid inorganic, cationic coagulant

**MANUFACTURE** • Manufactured in Adams MA at a NSF Registered & Inspected Facility

#### TYPICAL PROPERTIES

- $Al_2O_3$ : 8.1% - 8.4%
- Basicity: 0.3% + 0.2%
- pH as is @ 77°F: > 2.0 / 2.3 + 0.2
- Density @ 60°F: 1.325-1.335 S.G.
- Appearance: Clear to slight haze, amber to blue-green color
- Shelf life: 12 months
- Recommended storage: 40°-100°F
- Freeze point: 4°F ±

#### SHIPPING INFORMATION

- Classification: Liquid N.O.S. 9 UN 3082 PG III environmentally hazardous substance
- Delivery: Bulk and mini bulk deliveries by self-unloading truck

#### ORDER or ASSISTANCE - 24hours / 7days

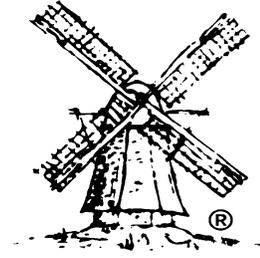
- Phone: 800-639-9602 / 413-743-1292
- Lead time for bulk delivery: One to two days

**Refer to the Safety Data Sheet (SDS) before using or handling**

This information is furnished free of charge and is based on data that Holland Co. believes to be reliable. The data and product is for use by persons having technical skill in the use and handling of the product and do so at their own discretion and risk. Since conditions of use are beyond our control we make no warranty expressed or implied and assume no liability in the use of the product or information provided.

# Holland COMPANY, INC.

153 Howland Avenue  
Adams, Mass. 01220  
Tel. (413) 743-1292



## PRODUCT DATA SHEET

### LIQUID SODIUM ALUMINATE

**CHEMICAL FORMULA**  $\text{Na}_2\text{Al}_2\text{O}_4 \cdot x\text{H}_2\text{O}$

This product complies with AWWA STANDARDS for potable water, the National Academy of Science Water Chemicals Codex and is certified for potable water treatment under NSF STANDARD 60.

#### TYPICAL ANALYSIS

$\text{Na}_2\text{Al}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$	36.3 – 40.2 %
$\text{Al}_2\text{O}_3$	18.6% – 20.6%
$\text{Na}_2\text{O}$	17.8-19.8%

#### PHYSICAL PROPERTIES

WEIGHT- lbs./gal.	12.4 – 12.8
SPECIFIC GRAVITY @ 60°F	1.49 – 1.53
APPEARANCE –	LIGHT AMBER LIQUID

The above tables give typical properties based on historical production performance. Holland does not make any express or implied warranty that these products will continue to have these typical properties.

#### SHIPPING INFORMATION

CLASSIFICATION	SODIUM ALUMINATE, SOLUTION, 8 RQ, PG11, UN1819
CAS NUMBER	11138-49-1
CONTAINER	STAINLESS STEEL TANK TRUCKS
DELIVERY	SELF UNLOADING TANK TRUCKS, DRIVER MAKES ALL HOOK UPS AND UNLOADS
UNLOADING TIME	APPROXIMATELY ONE HOUR
FITTINGS	3" QUICK COUPLING

**ORDER LEAD TIME** ONE TO TWO DAYS

The information set forth herein is furnished free of charge and is based on technical data that Holland believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

**Holland** COMPANY INC. \* 153 HOWLAND AVENUE \* ADAMS, MA 01220 \* TEL.(413) 743-1292 \* FAX(413) 743-1298  
[www.hollandcompany.com](http://www.hollandcompany.com)

Rev: 021014



# Holland COMPANY, INC.

153 Howland Avenue  
Adams, Mass. 01220

(Tel.) (413) 743-1292

## PRODUCT DATA SHEET

**PRODUCT NAME:** EPIC WW 58 - COAGULANT

**DESCRIPTION:** Water Soluble Aluminum Salt

**APPLICATION:** EPIC WW 58 enhances the liquid / solids separation process through enhanced charge neutralization. The predominance of highly charged polynuclear species aids in effective coagulation. In *paper process applications*, EPIC acts as a charge neutralizer, retention aid and pitch control aid.

### TYPICAL PROPERTIES

- |                                    |  |
|------------------------------------|--|
| * Appearance: Clear to slight haze | * Insolubles: less than 0.01 %                   |
| * Boiling point: 220°F             | * Solubility in water at 68°F : 100% (by weight) |
| * Freezing point: 14°F             | * pH in concentrate: 2.6 ± .2                    |
| * Specific Gravity: 1.26 – 1.27    | * AL <sub>2</sub> O <sub>3</sub> % 10.5 – 10.7%  |

### SHIPPING INFORMATION

CLASSIFICATION	WATER SOLUBLE ALUMINUM SALT SOLUTION ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S., 9, UN 3082, PG-III
CONTAINER	TANK TRUCKS, TOTES OR 55 GALLON DRUMS
DELIVERY	SELF UNLOADING TANK TRUCKS DRIVER MAKES ALL HOOK UPS AND UNLOADS

**ORDER LEAD TIME** ONE OR TWO DAYS

The information set forth herein is furnished free of charge and is based on technical data that Holland believes to be reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

Rev. 0215