

Bradford, Julie

RECEIVED

27 JUN 2014

From: Zachary, Aled
Sent: 03 July 2014 11:22
To: Bradford, Julie
Subject: FW: Headland Agrochemicals
Attachments: INEOS HDPE Chemical Resistance Guide.pdf; Tank Brochure.pdf

Follow Up Flag: Follow up
Flag Status: Completed

From: Carl Rowe [<mailto:carl.rowe@headlandgroup.com>]

Sent: 27 June 2014 08:36

To: Zachary, Aled

Subject: RE: Headland Agrochemicals

Hello Aled

Here is some more information regarding the Nitric Acid Bulk Tank that was recently installed on site

The site contracted a project manager at the end of 2012 to look into purchasing and installing a new Nitric Bulk Tank, the project manager approached Schoeller Allibert (now Helix) regarding compatibility aspects and they recommended the HDPE bulk tank for our strength of 60% Nitric Acid
See attached brochure from Helix

I have also attached a document from INEOS regarding nitric acid 70% compatibility with HDPE for you to view.

Regards

Carl Rowe
Health, Safety & Environment Manager
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: [carl.rowe_cheminova](#)



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 **Headland**

 **CHEMINOVA**

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Telephone: 01244 537370 Fax: 01244 532097

	DETAILS	DATE
OK FOR PUBLIC REGISTER	AZ	14/7/14
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HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)	Reagent	70° F (21° C)	140° F (60° C)
A			B		
Acetaldehyde	S	O	Barium carbonate saturated	S	S
Acetic acid (1-10%)	S	S	Barium carbonate saturated	S	S
Acetic acid (10-60%)	S	O	Barium hydroxide	S	S
Acetic acid (80-100%)	S	O	Barium sulfate saturated	S	S
Acetic anhydride	S	S	Barium sulfite saturated	S	S
Acetone	S	S	Beer	S	S
Acids (aromatic)	S	S	Benzaldehyde	S	O
Acrylic emulsions	S	S	Benzene	O	U
Adipic acid	S	S	Benzene sulfonic acid	S	S
Aluminum chloride concentrated	S	S	Benzoic acid crystals	S	S
Aluminum chloride dilute	S	S	Benzoic acid saturated	S	S
Aluminum fluoride concentrated	S	S	Bismuth carbonate saturated	S	S
Aluminum sulfate concentrated	S	S	Black liquor	S	S
Alums (all types) concentrated	S	S	Bleach lye (10%)	S	S
Amino acetic acid	S	S	Borax cold saturated	S	S
Ammonia (100% dry gas)	S	S	Boric acid concentrated	S	S
Ammonium acetate	S	S	Boric acid dilute	S	S
Ammonium bromide	S	S	Brine	S	S
Ammonium carbonate	S	S	Bromic acid (10%)	S	S
Ammonium chloride saturated	S	S	Bromine liquid (100%)	O	U
Ammonium fluoride (20%)	S	S	Bromochloromethane	U	U
Ammonium hydroxide	S	S	Butadiene	U	U
Ammonium metaphosphate (sat.)	S	S	Butanediol (10%)	S	S
Ammonium nitrate saturated	S	S	Butanediol (60%)	S	S
Ammonium persulfate saturated	S	S	Butanediol (100%)	S	S
Ammonium phosphate	S	S	Butter	S	S
Ammonium sulfate saturated	S	S	Butyl acetate (100%)	O	U
Ammonium sulfide saturated	S	S	Butyl alcohol (100%)	S	S
Ammonium thiocyanate saturated	S	S	Butylene glycol	S	S
Amyl acetate (100%)	O	U	Butyric acid (100%)	S	S
Amyl alcohol (100%)	S	S			
Amyl Chloride (100%)	O	U	C		
Aniline (100%)	S	U	Caffeine citrate saturated	S	S
Anise seed oil	O	U	Calcium bisulfide	S	S
Antimony chloride	S	S	Calcium bromide	S	S
Aqua Regia	O	U	Calcium carbonate saturated	S	S
Aromatic hydrocarbons	U	U	Calcium Chlorate saturated	S	S
Arsenic	S	S	Calcium hydroxide	S	S
Aspirin	S	S	Calcium hypochlorite bleach solution	S	S
			Calcium nitrate (50%)	S	S
			Calcium sulfate	S	S

Legend: S – Satisfactory O – Some attack U – Unsatisfactory

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)	Reagent	70° F (21° C)	140° F (60° C)
Camphor crystals	S	S	Dextrose saturated	S	S
Camphor oil	U	U	Dibutyl ether	O	U
Carbon dioxide (100% dry)	S	S	Dichlorobenzene (ortho and para)	U	U
Carbon dioxide (100% wet)	S	S	Diethylene glycol	S	S
Carbon dioxide cold saturated	S	S	Dioxane	S	S
Carbon disulphide	O	U	Disodium phosphate	S	S
Carbon monoxide	S	S			
Carbon tetrachloride	U	U	E		
Carbonic acid	S	S	Emulsions (photographic)	S	S
Carnauba wax	S	S	Ether	O	O
Carrot juice	S	S	Ethyl acetate (100%)	O	O
Castor oil concentrated	S	S	Ethyl alcohol (35%)	S	S
Catsup	S	S	Ethyl alcohol (100%)	S	S
Caustic soda	S	O	Ethylbenzene	O	U
Cedar leaf oil	U	U	Ethylene glycol	S	S
Cedar wood oil	U	U			
Chlorine liquid	O	U	F		
Chlorobenzene	O	U	Ferric chloride saturated	S	S
Chloroform	U	U	Ferric nitrate saturated	S	S
Chlorosulfonic acid (100%)	U	U	Ferrous ammonium citrate	S	S
Chrome alum saturated	S	S	Ferrous chloride saturated	S	S
Chromic acid (10-20%)	S	O	Ferrous sulfate	S	S
Chromic acid (50%)	S	O	Fluoboric acid	S	S
Cider	S	S	Fluorine	S	U
Cinnamon	S	S	Fluosilicic acid (32%)	S	S
Cinnamon oil	U	U	Fluosilicic acid concentrated	S	S
Citric acid saturated	S	S	Formaldehyde (10-30%)	S	S
Citronella oil	O	U	Formaldehyde (30-40%)	S	O
Cloves (ground)	S	S	Formic acid (20%)	S	S
Coconut oil alcohols	S	S	Formic acid (50%)	S	S
Cod liver oil	S	S	Formic acid (100%)	S	S
Coffee	S	S	Fructose saturated	S	S
Copper chloride saturated	S	S	Fuel oil	S	U
Cooper cyanide saturated	S	S	Furfural (100%)	O	U
Copper fluoride (2%)	S	S	Furfuryl alcohol	S	C
Copper nitrate saturated	S	S			
Copper sulfate dilute	S	S	G		
Copper sulfate saturated	S	S	Gallic acid saturated	S	S
Corn oil	S	S	Gasoline	S	U
Cottonseed oil	S	S	Glucose	S	S
Cranberry sauce	S	S	Glycerine	S	S
Cresols	S	O	Glycol	S	S
Cuprous chloride saturated	S	S	Glycolic acid (30%)	S	S
Cuprous oxide	S	S	Grape juice	S	S
Cyclohexane	U	U	Grapefruit juice	S	S
Cyclohexanone	U	U			
			H		
D			Heptane	O	U
Decalin	S	S	Hexachlorobenzene	S	S
Detergents (synthetic)	S	S	Hexane	U	U
Developers (photogenic)	S	S	Hydrobromic acid (50%)	S	S
Dextrin saturated	S	S			

Legend: S = Satisfactory O = Some attack U = Unsatisfactory

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INEOS
Olefins & Polymers USA

HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)	Reagent	70° F (21° C)	140° F (60° C)
Hydrochloric acid (10%)	S	S	Methylene chloride (100%)	U	U
Hydrochloric acid (30%)	S	S	Methylsulfuric acid	S	S
Hydrochloric acid (35%)	S	S	Milk	S	S
Hydrocyanic acid	S	S	Mineral oils	S	U
Hydrocyanic acid saturated	S	S	Molasses	S	S
Hydrofluoric acid (40%)	S	S	Mustard (prepared)	S	S
Hydrofluoric acid (60%)	S	S			
Hydrofluoric acid (75%)	S	S	N		
Hydrogen (100%)	S	S	Naphtha	O	U
Hydrogen bromide (10%)	S	S	Naphthalene	S	U
Hydrogen chloride dry gas	S	S	Natural gas (wet)	S	S
Hydrogen peroxide (30%)	S	O	Nickel chloride saturated	S	S
Hydrogen sulfide	S	S	Nickel nitrate concentrated	S	S
Hydroquinone	S	S	Nickel sulfate	S	S
Hypochlorous acid concentrated	S	S	Nicotinic acid	S	S
			Nitric acid (0-30%)	S	S
I			Nitric acid (30-50%)	S	O
Inks	S	S	Nitric acid (70%)	S	O
Iodine crystals	O	O	Nitric acid (95-98%)	U	U
Isobutyl alcohol	S	S	Nitrobenzene (100%)	U	U
Isopropyl alcohol	S	S	Nitroglycerine	O	U
Isopropyl ether	O	U			
			O		
K			Octane	S	S
Kerosene	O	O	Oleum concentrated	U	U
			Olive oil	S	S
L			Orange juice	S	S
Lactic acid (10%)	S	S	Oxalic acid dilute	S	S
Lactic acid (90%)	S	S	Oxalic acid saturated	S	S
Lanolin	S	S	Ozone	O	O
Lard	S	S			
Lead acetate saturated	S	S	P		
Lead nitrate	S	S	Palm oil	S	S
Lemon juice	S	S	Paraffin oil	S	O
Lemon oil	O	U	Peanut butter	S	S
Lime juice	S	S	Pepper (fresh ground)	S	S
Linseed oil	S	S	Peppermint oil	O	U
			Perchloric acid (50%)	S	O
M			Perchloroethylene	U	U
Magnesium carbonate saturated	S	S	Petroleum ether	U	U
Magnesium chloride saturated	S	S	Petroleum jelly	S	S
Magnesium hydroxide saturated	S	S	Phenol	S	S
Magnesium nitrate saturated	S	S	Phosphoric acid (0-30%)	S	S
Magnesium sulfate saturated	S	S	Phosphoric acid (30-90%)	S	S
Margarine	S	S	Phosphoric acid (over 90%)	S	S
Mercuric chloride	S	S	Photographic solutions	S	S
Mercuric cyanide saturated	S	S	Phthalic anhydride	S	S
Mercurous nitrate saturated	S	S	Pickling baths	S	S
Mercury	S	S	Hydrochloric acid	S	S
Methyl alcohol (100%)	S	S	Sulfuric acid	S	S
Methyl ethyl ketone (100%)	U	U	Sulfuric-nitric	S	U

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INEOS
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HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)	Reagent	70° F (21° C)	140° F (60° C)
Pine oil	O	U	Sodium benzoate (35%)	S	S
Plating solutions			Sodium bicarbonate saturated	S	S
Brass	S	S	Sodium bisulfate saturated	S	S
Cadmium	S	S	Sodium bisulfite saturated	S	S
Chromium	S	S	Sodium borate	S	S
Copper	S	S	Sodium carbonate concentrated	S	S
Gold	S	S	Sodium chlorate saturated	S	S
Indium	S	S	Sodium chloride saturated	S	S
Lead	S	S	Sodium cyanide	S	S
Nickel	S	S	Sodium dichromate saturated	S	S
Rhodium	S	S	Sodium ferricyanide	S	S
Silver	S	S	Sodium ferricyanide concentrated	S	S
Tin	S	S	Sodium fluoride saturated	S	S
Zinc	S	S	Sodium hydroxide concentrated	S	S
Potassium bicarbonate saturated	S	S	Sodium hypochlorite	S	S
Potassium borate (1%)	S	S	Sodium nitrate	S	S
Potassium bromate (10%)	S	S	Sodium nitrite	S	S
Potassium bromide saturated	S	S	Sodium perborate	S	S
Potassium carbonate	S	S	Sodium phosphate	S	S
Potassium chlorate saturated	S	S	Sodium sulfide (25% to saturated)	S	S
Potassium chloride saturated	S	S	Sodium sulfite saturated	S	S
Potassium chromate (40%)	S	S	Sodium thiosulphate	S	S
Potassium cyanide saturated	S	S	Soybean oil	S	S
Potassium dichromate (40%)	S	S	Stannic chloride saturated	S	S
Potassium ferri / ferro cyanide	S	S	Stannous chloride saturated	S	S
Potassium nitrate saturated	S	S	Starch solution saturated	S	S
Potassium perborate saturated	S	S	Stearic acid (100%)	S	S
Potassium perchlorate (10%)	S	S	Styrene	U	U
Potassium permanganate (20%)	S	S	Sulfuric acid (0-50%)	S	S
Potassium persulfate saturated	S	S	Sulfuric acid (70%)	S	O
Potassium sulfate concentrated	S	S	Sulfuric acid (80%)	S	U
Potassium sulfide concentrated	S	S	Sulfuric acid (96%)	O	U
Potassium sulfite concentrated	S	S	Sulfuric acid (98% concentrated)	O	U
Propane gas	S	S	Sulfuric acid (fuming)	U	U
Propargyl alcohol	S	S	Sulfurous acid	S	S
Propyl alcohol	S	S	T		
Propylene glycol	S	S	Tannic acid (10%)	S	S
Pyridine	S	O	Tartaric acid	S	S
R			Tea	S	S
Rayon coagulating bath	S	S	Tetrahydrofuran	O	O
Resorcinol	S	S	Toluene	U	U
S			Tomato juice	S	S
Salicylic acid	S	S	Transformer oil	S	O
Seawater	S	S	Trichloroethylene	U	U
Shortening	S	S	Trisodium phosphate saturated	S	S
Silicic acid	S	S	Turpentine	O	U
Silver nitrate solution	S	S	U		
Soap solution concentrated	S	S	Urea	S	S
Sodium acetate saturated	S	S	Urine	S	S

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HDPE Chemical Resistance Guide

Reagent	70° F (21° C)	140° F (60° C)
V		
Vanilla extract	S	S
Vaseline	S	S
Vinegar (commercial)	S	S
W		
Wetting agents	S	S
Whiskey	S	S
Wines	S	S
X		
Xylene	U	U
Y		
Yeast	S	S
Z		
Zinc chloride saturated	S	S
Zinc oxide	S	S
Zinc sulfate saturated	S	S

Note: The proceeding information concerns general chemical resistance only. Since other factors such as permeation, ESCR and container design are involved, full compatibility testing is recommended.

Product inquiries:

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2600 South Shore Blvd.
Suite 500
League City, Texas 77573
Telephone: 281-535-6600
Fax: 281-535-6764
Customer Service: 800-527-5419

Battleground Manufacturing Complex

1230 Independence Parkway South
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INEOS
Olefins & Polymers USA

Bulk Storage Tanks

Peace of mind in hostile environments



Schoeller Allibert



BASE MANUFACTURE

Made to measure storage solutions

From 1 500 to 70,000 litres capacity, we can create the tank to meet your specific needs.

Fittings to help you fill, dispense, control, clean, inspect and measure include manway access, sloping base, mixers, level indicators, vents, pipes, valves, scrubbers and heaters.

Tanks can be supplied with a 110% capacity safety bund, all-weather cowl and bund alarm.

For easy access and controlled safety, we also specify and install corrosion resistant GRP ladders, walkways, steps and hand railings.

Tanks can be manufactured in a variety of colours.

Benefitting from the corrosion resistance of HDPE or PP, the same tank could be used to store different chemicals after inspection and reference to Schoeller Allibert.



WELDING



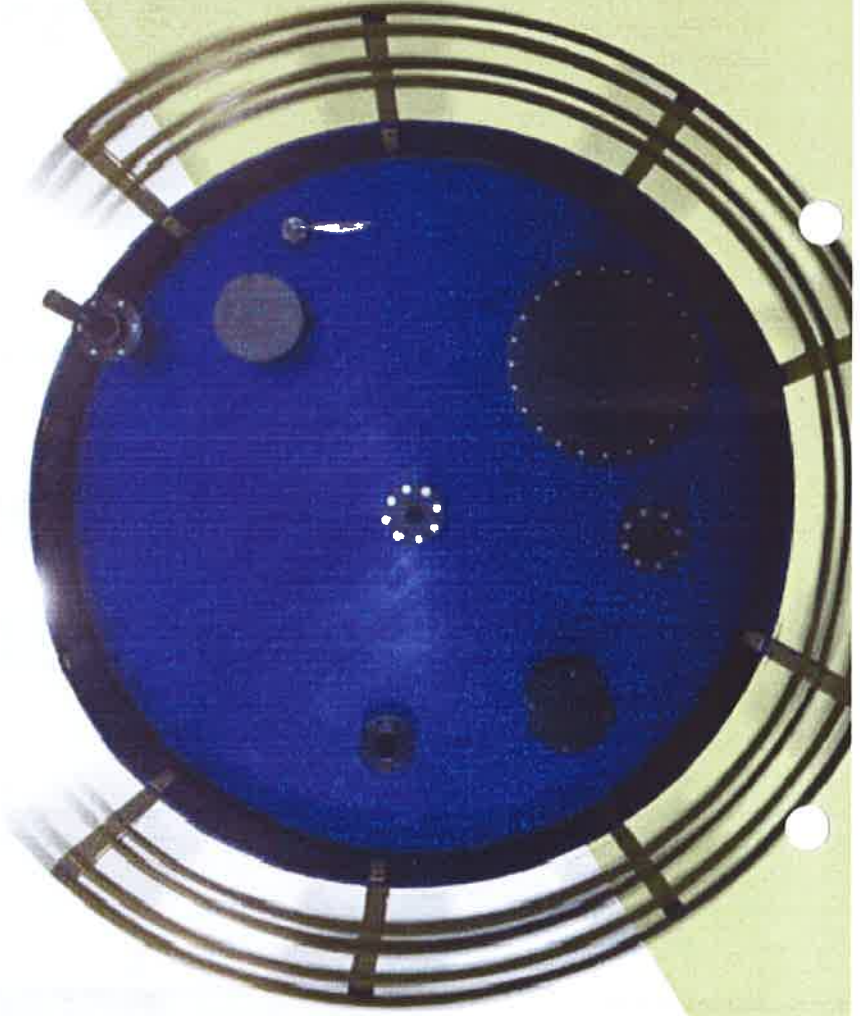
LEVEL INDICATION



INSTALLATION

Manufacturing Process

- A high density polyethylene (HDPE) or polypropylene (PP) strip is extruded at 220°C onto a preheated, revolving and traversing mandrel.
- Each wrap is laid over the previous layer, which fuses together to form a seamless cylinder with distinctive rings on the outside and a smooth internal surface.
- Intended use dictates material and wall thickness.
- Base & roof are welded on automatically.
- Fittings are then added by our team of fabricators.
- Final inspection and certification is carried out at the factory.
- Each Helix tank is 100% recyclable at the end of its long working life.

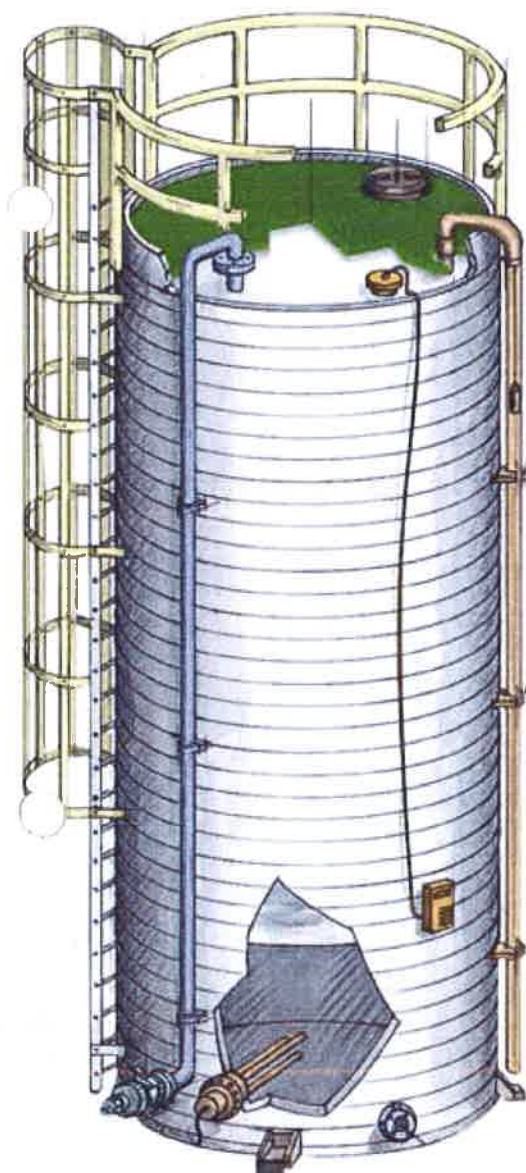


Tanks can be manufactured in any capacity

Tank dia (mm)	Capacity range (litres)	Cylinder height (mm)
1,200	1,500 - 2,500	1,450 - 2,350
1,600	2,000 - 5,000	1,100 - 2,650
1,785	5,000 - 10,000	2,100 - 4,300
2,000	5,000 - 12,500	1,700 - 4,300

Peace of mind in a hostile environment

Strong, durable and highly corrosion



Consultation

In addition to product, volume and function, the consultation process includes a detailed assessment of where the tank is to be sited, access, control requirements and safety regulations. We can also supply complete systems which include pumps, pipework, valves, etc.

Design

Our design engineers not only specify the ideal tank to meet your needs, but also plan the installation procedure. Operational requirements and safety are at the forefront of all tank designs.

Installation

Schoeller Allibert provide a total solution and will manage the entire installation including ground works, delivery, crane hire, positioning and securing, fitting accessories, pipework and structural sections, inspection and commissioning.

Aftercare

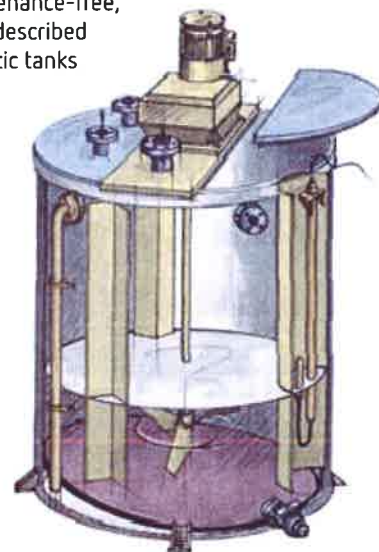
Ensuring that your tank provides a long trouble free working life; Schoeller Allibert Helix bulk storage tanks come with a 15 year design life as standard and can be specified up to 25 years. All our tanks are maintenance-free, however we recommend periodic inspection as described in the H&SE guidance notes PM86 "Thermoplastic tanks integrity management". Our service includes inspection, maintenance and certification to ensure compliance with current legislation.

End of life

Schoeller Allibert can also remove your old Helix tank and send it for recycling.

← Helix bulk storage tank c/w inspection hatch, level indicator, fill pipe, overflow, heater, ladder and handrailing.

Helix mixing tank c/w mixer / agitator →
removable cover, baffles and sloping or conical base.



Schoeller Allibert

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