ADELPHI PROCESS EQUIPMENT

Our stainless steel products are made to pharmaceutical standards and are designed to help you to maintain the highest standards of hygiene

Overview

Our experience, gained over 50 years, is available to help you obtain exactly what you need to meet your requirements. We are commited to providing you with outstanding service at all times, backed by our registration to ISO 9001.

To meet your precise needs we can adapt our products using our range of optional modifications (see the '**Storage and Transport Vessels**' product sheet, pp 7–8) or by customising to order. However, if you want something completely different, we would be pleased to quote for it.

Introduction to stainless steel

Stainless steel is a durable, versatile and hygienic material that is resistant to corrosion and looks good!

Technically, "stainless steel" is the name given to steels containing a minimum of 11% chromium. In practice, most stainless steels contain 18% chromium to improve corrosion resistance. Most stainless steels also contain nickel, to increase corrosion resistance still further.

There are over 200 different types of stainless steel, each with a different range of properties. However, five types account for the bulk of usage, and Adelphi products are generally made from two of these types, known as 304 and 316L grade.

304 is an excellent general grade of stainless steel. 316L contains molybdenum and has a low carbon content (less then 0.03%), and has even better corrosion resistance than 304 grade. 316L is preferred in many instances, particularly in pharmaceutical, cosmetic, food and dairy applications.

Stainless steel has outstanding resistance to corrosion and attack from a very wide range of chemicals and products. However, there are some situations where it is not suitable. Corrosion resistance depends on the temperature and concentration as well as the chemical composition of the product in contact with the stainless steel.

Stainless steel corrosion chart

Corrosion resistance depends on the temperature and composition as well as the chemical composition of the product in contact with the stainless steel. The information in the chart below is given only as a general guide and is not a warranty of performance or corrosion resistance of any product in this brochure, or elsewhere. Adelphi accepts no liability for the performance of products in individual applications chosen on the basis of the information provided here.

Material	304 Grade			316L Grade		
	20°c	60°C	100°C	20°c	60°C	100°C
Acetic Acid (10%)	OK	OK		OK	OK	OK
Acetic Anhydride	OK			OK	OK	OK
Acetone	OK	OK	OK	OK	OK	OK
Alum	OK	C		OK	OK	
Aluminium Chloride	P,C			P,C		
Ammonium Carbonate	OK	OK	OK	OK	OK	OK
Ammonium Chloride	P			P	P,C	
Amyl Alcohol	OK	OK	OK	OK	OK	OK
Aniline	OK	OK	OK	OK	OK	OK
Beer	OK	OK	OK	OK	OK	OK
Benzoic Acid	OK	OK	OK	OK	OK	OK
Blood	OK			OK		
Boric Acid	OK	OK	OK	OK	OK	OK
Calcium Chloride	P,C	P,C	P,C	P,C	P,C	P,C
Carbon Disulphide	OK	OK		OK	OK	
Carbon Tetrachloride	M	M		M	M	
Chloroform	P	P		P	P	
Chlorosulphonic Acid				P		
Citric Acid	OK	OK		OK	OK	OK
Copper Sulphate	OK	OK	OK	OK	OK	OK
Detergents (Alkaline, Chloride Free)	OK	OK	OK	OK	OK	OK
Ether	OK	OK	OK	OK	OK	OK
Fatty Acids	OK	OK	OK	OK	OK	OK
Formaldehyde	OK	OK	OK	OK	OK	OK
Formic Acid	OK			OK	OK	
Fruit Juices	S	S	S	OK	OK	OK
Gelatine	OK	OK	OK	OK	OK	OK
Glycerine	OK	OK	OK	OK	OK	OK
Glycols	OK	OK	OK	OK	OK	OK
Hydrochloric Acid				P,C		x
Hydrocyanic Acid	OK			OK		
Hydrogen Peroxide	OK	OK	OK	OK	OK	OK
Ink (Synthetic, Chloride Free)	OK	OK	OK	OK	OK	OK
Lactic Acid	OK					
Lead Acetate	OK	OK	OK	OK	OK	OK
Malic Acid	C	C	C	OK	OK	OK
Mercury	OK	OK	OK	OK	OK	OK

Material	304 Grade			316L Grade		
	20°c	60°C	100°C	20°c	60°C	100°C
Milk	OK	OK	OK	OK	OK	OK
Mustard	P		P			x
Napthalene	OK	OK	OK	OK	OK	OK
Nitric Acid	OK	OK		OK	OK	C
Oils, Essential	OK	OK	OK	OK	OK	OK
Oils, Mineral	OK	OK	OK	OK	OK	OK
Oils, Vegetable & Animal	OK	OK	OK	OK	OK	OK
Oxalic Acid	C			C	C	
Paraffin	OK	OK	OK	OK	OK	OK
Pectin	OK	OK	OK	OK	OK	OK
Petrol	OK	OK	OK	OK	OK	OK
Phenol	OK	OK	OK	OK	OK	x
Phosphoric Acid	OK	C		OK	C	C
Picric Acid	OK	OK	OK	OK	OK	OK
Pyridine	OK	OK	OK	OK	OK	OK
Sea Water	P			P		
Silicone Fluids	OK	OK	OK	OK	OK	OK
Silver Nitrate	OK	OK	OK	OK	OK	OK
Sodium Bicarbonate	OK	OK	OK	OK	OK	OK
Sodium Peroxide	OK	OK	OK	OK	OK	OK
Sodium Silicate	OK	OK	OK	OK	OK	OK
Starch	OK	OK	OK	OK	OK	OK
Sulphuric Acid				C		
Syrup & Sugar	OK	OK	OK	OK	OK	OK
Tannic Acid (50%)	OK	OK	OK	OK	OK	OK
Tartaric Acid	OK	OK		OK	OK	C
Textile Dyes	OK	OK	OK	OK	OK	OK
Trichloroethylene	M	M	M	M	M	M
Vinegar	OK	OK	OK	OK	OK	OK
Water, Distilled	OK	OK	OK	OK	OK	OK
Yeast	OK	OK	OK	OK	OK	OK

Key

OK Can be considered corrosion proof
C Depends on concentration of solution
M Risk of pitting corrosion in presence of moisture
P Risk of pitting corrosion
S Use 316L grade if sulphure dioxide is used as a preservative