

Resistance Guide

Lutz Drum and Container Pumps

Eccentric Screw Pumps

Flow Meters

Double Diaphragm Pumps



Safety is our Concern

Mediums table for eccentric screw pumps

Cosmetics products

Medium	Dynamic Viscosity*	Temperature
Shampoo	3000 mPas	20 °C
Liquid Soap	85 mPas	60 °C
Toothpaste	70000 mPas	40 °C
Hand Creme	780 mPas	20 °C

Vegetable oils / Animal oils

Medium	Dynamic Viscosity*	Temperature
Castor Oil	580 mPas	20 °C
Coconut Oil	60 mPas	20 °C
Corn Oil	30 mPas	60 °C
Cottonseed Oil	60 mPas	20 °C
Linseed Oil	30 mPas	40 °C
Olive Oil	40 mPas	40 °C
Palm Oil	45 mPas	40 °C
Peanut Oil	40 mPas	40 °C
Soya Oil	60 mPas	20 °C
Cod Liver Oil	35 mPas	40 °C
Pig Fat	65 mPas	40 °C

Dairy products

Medium	Dynamic Viscosity*	Temperature
Butter Fat	45 mPas	40 °C
Cheese Spread	30000 mPas	60 °C
Cocoa Butter	50 mPas	60 °C
Condensed Milk	80 mPas	40 °C
Cream		
(30 - 50 % fat content)	15-115 mPas	20 °C
Milk	2 mPas	20 °C
Whey	800-1500 mPas	40 °C
Yoghurt	150 mPas	40 °C
Liquid egg	150 mPas	45 °C

Mineral oil products

Medium	Dynamic Viscosity*	Temperature
Motor Oil SAE 5	30 mPas	20 °C
Motor Oil SAE 10	50 mPas	20 °C
Motor Oil SAE 15	130 mPas	20 °C
Motor Oil SAE 15W40	390 mPas	20 °C
Motor Oil SAE 15W40	3000 mPas	-15 °C
Motor Oil SAE 50	750 mPas	20 °C
Hydraulic Oil HLP 46	120 mPas	20 °C
Hydraulic Oil HLP 68	195 mPas	20 °C
Hydraulic Oil HLP 100	300 mPas	20 °C
Gear Oil SAE 90	700 mPas	20 °C
Gear Oil SAE 140	2700 mPas	20 °C

Foodstuffs

Medium	Dynamic Viscosity*	Temperature
Butter	30000 mPas	40 °C
Baby Food	1400 mPas	40 °C
Brewer's Yeast	370 mPas	20 °C
Vegetable Soup	430 mPas	20 °C
Chocolate Sauce	280 mPas	50 °C
Fruit Pulp	600 mPas	20 °C
Whipped Desserts	1500 mPas	40 °C
Gelatine	1200 mPas	45 °C
Glucose	4300-6800 mPas	25-30 °C
Gravy	110 mPas	80 °C
Jam	8500 mPas	20 °C
Malt Extract	9500 mPas	20 °C
Mayonnaise	2000 mPas	20 °C
Pectin	300 mPas	40 °C
Fruit Juice Concentrate	2500 mPas	20 °C
Pudding	1000 mPas	40 °C
Salad Dressing	1300-2600 mPas	20 °C
Apple Puré	1500 mPas	20 °C
Tomato Ketchup	1000 mPas	30 °C
Tomato Puré	195 mPas	20 °C
Honey	2000 mPas	40 °C

Industrial products

Medium	Dynamic Viscosity*	Temperature
Glycerine 100 %	650 mPas	20 °C
Lacquers (25 % pigments)	3000 mPas	20 °C
Polyester resin	3000 mPas	30 °C
Printing inks	550-2200 mPas	40 °C
Resin solution	7100 mPas	20 °C
Glycol	40 mPas	20 °C
Latex emulsion	200 mPas	20 °C
Paraffin emulsion	3000 mPas	20 °C
Liquid wax	500 mPas	90 °C
Cleaning emulsion	1500 mPas	70 °C

The liquids and their viscosities mentioned result from various practical applications. Other temperatures or compositions affect the viscosity and the flow properties of the several media.

Please contact us. We configure for your application the optimal pump model, which can be tested also locally.

* Products must still be fluid.

Finding your way around the Lutz chemical resistance table

1. General

This chemical resistance table contains reasonably concise information about the chemical resistance characteristics of the different types of pump tubes and flow meters to various media. The materials coming into contact with the liquids which are employed in the pump tubes have been tested with regard to their chemical resistances and assessed for use at room temperature.

The chemical resistance table is intended as a guide to the suitability of each pump tube; it also specifies any materials which are wholly unsuitable for certain concrete applications. Please do not hesitate to consult us directly if you are unable to find the most suitable material for your pump tube.

In cases where the resistance characteristics cannot be verified, or where any other reservations exist regarding the use of a particular combination of materials, we strongly recommend trying out the equipment under operating conditions. We can provide samples of various materials on request. It should be remembered that discolouring on the surface, minor increases in the weight and/or volume and changes to the mechanical properties (strain characteristics, strength properties, etc.) do not necessarily affect functioning to a sufficient extent to preclude the use of a material.

Since corrosion is influenced by a variety of factors, the information contained in the table cannot necessarily be applied to all operating conditions. Corrosion may be accelerated by temperature increases, by medium concentrations or by the entry of water into media which are otherwise pure. Discrepancies regarding the long-term resistance of plastics and elastomers are also possible, depending on the amount of impurities in the medium as well as on the compounding and degree of vulcanisation of the sealing materials.

The table specifications are based on the assumption that no other mechanical forces are effective.

2. How to use the table

The corrosive media are arranged in the table in alphabetical order. Formulas of chemical compounds are included for the purposes of simplification. Where known and meaningful, the table also lists the concentration, density, temperature classes, danger classes and explosion groups of the media.

The table is an extremely reliable guide to the behaviour of corrosive media at room temperature, since a large part of the information it contains was only available for a temperature of 20 °C. In view of the continuing advances in the field of plastics, extensive suitability tests may reveal that some of the materials employed in our pumps can be substituted or that others which are not mentioned can in fact be used. New materials are therefore likely to be added to the table at some stage in the future. At the same time we are constantly endeavouring to eliminate any gaps in our information.

All the information in the chemical resistance table is based on empirical values supplied by industry and on the results of tests performed in our own laboratories. The resistance data specified for the individual products do not provide any entitlement to make warranty claims, since it is merely intended to serve as a recommendation for practical applications. You can make your product choice more reliable by taking account of your own experience with regard to the resistance of particular materials to aggressive media. Special attention should be paid to the guidelines concerning flammable liquids.

Explanation column pump set:

In this column you find the appropriate recommendations regarding our **Lutz pump sets**. The numbering has thereby the following meaning:

„**Pump set no.**“ without addition means general suitability of the set for the selected medium.

„**Pump set no. 1**“ means conditional suitability of the set for the selected medium. With this set danger of discoloration and/or embrittlement in dependence of the short working period may occur on the PVC-hose.

Meaning of symbols and notes:

- = Little or no corrosion, resistant
- ① = Conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
- ② = Special seal EPDM
- ③ = Special seal Viton-FEP
- ④ = Special friction bearing Rulon (pump tube SS 41-SL only)
- ⑤ = Measuring chamber for Nitric Acid
- ⑥ = On demand
- pure = technical pure
- sat. = saturated

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<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Acetaldehyde – Bitter Salt</h3>			concentration in %	Spec. gravity kg/dm³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes										
							PP			B50		PVDF		Alu			
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP HC	Container pump B50 PP SS	PVDF-MS	PVDF-SL	Alu-MS		
No.	Medium	Formula															
1	Acetaldehyde	CH ₃ CHO	40			-	②	②	○	○	-	-	②	○	②		
2	Acetaldehyde	CH ₃ CHO	pure	0.79	IIA	8, 10	-	-	-	-	-	-	-	-	-		
3	Acetamide	CH ₃ CONH ₂	pure	0.98		5	○	○	○	○	○	○	○	○	-		
4	Acetic Acid	CH ₃ COOH	10			3	②	②	○	○	②	②	②	○	-		
5	Acetic Acid	CH ₃ COOH	25			3	②	②	○	○	②	②	②	○	-		
6	Acetic Acid	CH ₃ COOH	50			3.1	②	②	○	○	②	②	②	○	-		
7	Acetic Acid	CH ₃ COOH	80			-	-	-	○	○	②	②	-	○	-		
8	Acetic Acid	CH ₃ COOH	100	1.05	IIA	8, 10	-	-	-	-	-	-	-	-	-		
9	Acetic Anhydride	(CH ₃ CO) ₂ O	pure	1.09	IIA	8, 10	-	-	-	-	-	-	-	-	-		
10	Acetic Ester	CH ₃ COOC ₂ H ₅	100	1.03		-	-	-	-	-	-	-	-	-	-		
11	Acetic Methyl Ester	CH ₃ COOCH ₃	100	0.93	IIA	8, 10	-	-	-	-	-	-	-	-	-		
12	Acetone	CH ₃ COCH ₃	10			8, 10	-	-	-	-	-	-	-	-	-		
13	Acetone	CH ₃ COCH ₃	pure	0.79	IIA	8, 10	-	-	-	-	-	-	-	-	-		
14	Acetonitrile	CH ₃ CN		0.78	IIA	8, 10	-	-	-	-	-	-	-	-	-		
15	Acrylonitrile	CH ₂ CHCN	pure	0.81	IIA	8, 10	-	-	-	-	-	-	-	-	-		
16	Adipic Acid	HOOC(CH ₂) ₄ COOH	sat.	1.36		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○		
17	Allyl Alcohol	H ₂ C=CHCH ₂ OH	96	0.85	IIB	8, 10	-	-	-	-	-	-	-	-	-		
18	Alum	KAl(SO ₄) ₂ ·x12H ₂ O	50			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○		
19	Aluminium Chloride	AlCl ₃	10			1, 2, 4, 5	-	○	-	○	○	-	○	○	-		
20	Aluminium Chloride	AlCl ₃	sat.			1, 2, 4, 5	-	○	-	○	○	-	○	○	-		
21	Aluminium Nitrate	Al(NO ₃) ₃	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
22	Aluminium Sulfate	Al ₂ (SO ₄) ₃	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
23	Aluminium Sulfate	Al ₂ (SO ₄) ₃	sat.	1.61		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
24	Ammonia	NH ₃	sat.	0.61		3	②	②	○	○	②	②	②	○	-		
25	Ammonium Acetate	CH ₃ COONH ₄				3	②	②	○	○	②	②	②	○	②		
26	Ammonium Carbonate	(NH ₄) ₂ CO ₃				3	②	②	○	○	②	②	②	○	②		
27	Ammonium Chloride	NH ₄ Cl	sat.	1.07		1, 2, 4, 5	-	○	-	○	○	-	○	○	-		
28	Ammonium Di-Hy.Phosphate	NH ₄ H ₂ PO ₄				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
29	Ammonium Fluoride	NH ₄ F	14			5	-	○	-	○	○	-	○	○	-		
30	Ammonium Fluorosilicate	(NH ₄) ₂ SiF ₆	pure			-	②	②	○	○	②	②	②	○	②		
31	Ammonium Nitrate	NH ₄ NO ₃	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
32	Ammonium Nitrate	NH ₄ NO ₃	50	1.23		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
33	Ammonium Nitrate	NH ₄ NO ₃	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
34	Ammonium Sulfate	(NH ₄) ₂ SO ₄	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
35	Ammonium Sulfate	(NH ₄) ₂ SO ₄	50	1.28		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
36	Ammonium Sulfate	(NH ₄) ₂ SO ₄	sat.	1.3		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
37	Ammonium Sulfide	(NH ₄) ₂ SO ₃	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
38	Amyl Acetate	CH ₃ CO ₂ C ₄ H ₉	pure	0.88	IIA	8, 10	-	-	-	-	-	-	-	-	-		
39	Amyl Alcohol	C ₄ H ₉ OH	pure	0.82	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-		
40	Amyl Chloride	CH ₂ (CH ₂) ₄ Cl	pure	0.87	IIA	8, 10	-	-	-	-	-	-	-	-	-		
41	Aniline	C ₆ H ₅ N	pure	1.01		-	-	-	-	-	-	-	-	-	-		
42	Anone	C ₆ H ₆ O	pure	0.95	IIA	8, 10	-	-	-	-	-	-	-	-	-		
43	Antifreeze	HOCH ₂ CH ₂ OH	pure	1.11		5, 1.1, 2.1, 3.1	○	○	○	○	○	○	○	○	○		
44	Arsenic Acid	H ₃ AsO ₄	10			5	○	○	○	○	○	○	○	○	-		
45	Arsenic Acid	H ₃ AsO ₄	80			5	○	○	○	○	○	○	○	○	-		
46	Barium Chloride	BaCl ₂	10			1, 2, 4, 5	-	○	-	○	○	-	○	○	-		
47	Barium Chloride	BaCl ₂	25	1.27		1, 2, 4, 5	-	○	-	○	○	-	○	○	-		
48	Barium Hydroxide	Ba(OH) ₂	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-		
49	Benzaldehyde	C ₆ H ₅ CHO	0,1			5	○	○	○	○	-	-	○	○	○		
50	Benzaldehyde	C ₆ H ₅ CHO	pure	1.05		-	-	-	-	-	-	-	-	-	②		
51	Benzene	C ₆ H ₆	pure	0.88	IIA	8, 10	-	-	-	-	-	-	-	-	-		
52	Benzoic Acid	C ₆ H ₅ COOH	10	1.27		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○		
53	Benzyl Alcohol	C ₆ H ₅ CH ₂ OH	pure	1.04	IIA	8, 10	-	-	-	-	-	-	-	-	-		
54	Benzyl Chloride	C ₆ H ₅ CH ₂ Cl		1.11		-	-	-	-	-	-	-	-	-	-		
55	Bitter Salt	MgSO ₄	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○		
56	Bitter Salt	MgSO ₄	sat.	1.28		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○		

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ① = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Bleaching Solution – Copper Acetate</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes										
							PP			B50		PVDF		Alu			
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP HC	Container pump B50 PP SS	PVDF-MS	PVDF-SL	Alu-MS		
No.	Medium	Formula															
57	Bleaching Solution	NaOCl	10			5	-	-	-	-	-	-	○	○	-	-	-
58	Bleaching Solution	NaOCl	12,5			5	-	-	-	-	-	-	○	○	-	-	-
59	Bleaching Solution	NaOCl	20			5	-	-	-	-	-	-	○	○	-	-	-
60	Borax	Na ₂ B ₄ O ₇	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
61	Borax	Na ₂ B ₄ O ₇	sat.	1.03		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
62	Boric Acid	H ₃ BO ₃	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
63	Boric Acid	H ₃ BO ₃	sat.	1.01		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
64	Bromic Acid	HBrO ₃	10			-	-	-	⊗	⊗	-	-	-	⊗	-	-	-
65	Bromine	Br ₂	pure	3.19		-	-	-	-	-	-	-	-	-	-	-	-
66	Butane	C ₄ H ₁₀	50	0.58	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
67	Butane Diol	HO(CH ₂) ₂ OH	pure	1.01		5	-	-	-	-	-	-	○	○	-	-	-
68	Butanol	C ₄ H ₉ OH	100	0.81	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
69	Butyl Acetate	CH ₃ CO(CH ₂) ₃ CH ₃	100	0.88	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-
70	Butyl Alcohol	C ₄ H ₉ OH	100	0.81	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
71	Butyl Chloride	CH ₃ (CH ₂) ₃ Cl	pure	0.89	IIA	-	-	-	-	-	-	-	-	-	-	-	-
72	Butyl Glycol	HO(CH ₂) ₂ OH		0.9		-	-	-	-	-	-	-	-	-	-	-	○
73	Butyl Phenol	C ₁₀ H ₁₂ O	pure			-	-	-	○	○	-	-	-	-	○	-	-
74	Butyl Phthalate	C ₁₆ H ₁₈ (COOC ₂ H ₅) ₂	pure	1.05		-	-	-	-	-	-	-	-	-	○	-	-
75	Butylene Glycol	C ₆ H ₁₂ O ₃	pure	1.01		5	-	-	-	-	-	-	○	○	○	-	-
76	Butyric Acid	CH ₃ (CH ₂) ₃ CO ₂ H	20	0.88		1.1, 2.1, 3.1, 5	○	○	○	○	○	○	○	○	○	-	-
77	Butyric Acid	CH ₃ (CH ₂) ₃ CO ₂ H	pure	0.96		5	○	○	○	○	○	○	○	○	○	-	-
78	Calcium Chlorate	Ca(ClO ₃) ₂	10			5	○	○	○	○	○	○	○	○	○	-	-
79	Calcium Chloride	CaCl ₂	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
80	Calcium Chloride	CaCl ₂	sat.	1.4		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
81	Calcium Di-Hy. Sulphite	Ca(HSO ₃) ₂	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
82	Calcium Di-Hy. Sulphite	Ca(HSO ₃) ₂	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
83	Calcium Hypochlorite	Ca(ClO) ₂	10			5	-	○	-	○	○	-	○	○	○	-	-
84	Calcium Nitrate	Ca(NO ₃) ₂	50	1.48		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	-	-
85	Camphor	C ₁₅ H ₂₄ O				-	-	-	○	○	-	-	-	-	○	-	-
86	Caprylic Acid	CH ₃ (CH ₂) ₆ COOH				5	-	-	-	-	-	-	-	-	○	-	-
87	Carbolic Acid	C ₆ H ₅ OH	50			-	-	-	-	-	-	-	-	-	-	-	○
88	Carbolic Acid	C ₆ H ₅ OH	90	1.07		-	-	-	-	-	-	-	-	-	-	-	○
89	Carbon Tetrachloride	CCl ₄	pure	1.59		5	-	-	-	-	-	-	-	-	○	-	-
90	Carbonic Acid	H ₂ CO ₃				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
91	Castor Oil	Mixture	h.ü.	0.96		5	○	○	○	○	○	○	○	○	○	-	-
92	Caustic Potash	KOH	20	1.19		-	⊗	⊗	○	○	⊗	⊗	⊗	⊗	○	-	-
93	Caustic Potash	KOH	30	1.29		-	⊗	⊗	○	○	⊗	⊗	⊗	⊗	○	-	-
94	Caustic Potash	KOH	60	1.63		-	⊗	⊗	○	○	⊗	⊗	⊗	⊗	○	-	-
95	Chloric Acid	HClO ₄	10			1, 2, 4, 5	-	○	-	○	-	-	○	○	-	-	-
96	Chlorine Solution	NaOCl	10			5	-	-	-	-	-	-	-	○	○	-	-
97	Chlorine Solution	NaOCl	12,5			5	-	-	-	-	-	-	-	○	○	-	-
98	Chlorine Water	Cl ₂ /H ₂ O	sat.			5	-	-	-	-	-	-	-	○	○	-	-
99	Chloroacetic Acid	ClCH ₂ COOH	85	1.36		-	-	⊗	-	○	⊗	-	⊗	○	-	-	-
100	Chloroacetic Acid	ClCH ₂ COOH	98	1.36		-	-	⊗	-	○	⊗	-	⊗	○	-	-	-
101	Chlorobenzene	C ₆ H ₅ Cl	pure	1.11	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-
102	Chloroethane	CH ₃ CH ₂ Cl	pure	0.92		5	-	-	-	-	-	-	-	-	○	-	-
103	Chloroform	CHCl ₃	100	1.48		-	-	-	-	-	-	-	-	-	-	-	○
104	Chlorosulphonic Acid	HSO ₃ Cl	pure	1.77		-	-	-	-	-	-	-	-	-	-	-	-
105	Chlorothene	Cl ₂ CCH ₃	pure	1.34		5	-	-	-	-	-	-	-	-	○	-	-
106	Chlorotoluene	C ₆ H ₄ Cl		1.11		-	-	-	-	-	-	-	-	-	-	-	-
107	Chromic Acid	H ₂ CrO ₄	30			5	-	-	-	-	-	-	-	-	○	-	-
108	Chromic Acid	H ₂ CrO ₄	50			5	-	○	-	○	-	-	-	○	○	-	-
109	Citric Acid	C ₆ H ₈ O ₇	50	1.22		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	-	-
110	Clophene	Mixture	pure			-	-	-	-	-	-	-	-	-	-	-	○
111	Clove Oil	Mixture				-	-	-	-	-	-	-	-	-	-	-	-
112	Copper Acetate	Cu(C ₂ H ₃ O ₂) ₂	50			1, 2, 3, 4, 5	○	○	○	○	-	-	○	○	-	-	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ⊗ = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Copper Nitrate – Formaldehyde</h3>			concentration in %	Spec. gravity kg/dm³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes											
							PP			B50		PVDF		Alu				
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP-HC	Container pump B50 PP-SS	PVDF-MS	PVDF-SL	Alu-MS			
No.	Medium	Formula																
113	Copper Nitrate	Cu(NO ₃) ₂	25	1.25		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
114	Copper Sulfate	CuSO ₄	18	1.21		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
115	Copper Sulfate	CuSO ₄	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
116	Copper(I)Chloride	CuCl	10			-	-	○	-	○	○	-	○	○	○	○	○	-
117	Copper(II)Chloride	CuCl ₂	20	1.21		-	-	○	-	○	○	-	○	○	○	○	○	-
118	Corn Oil	Mixture	pure			5	○	○	○	○	○	○	○	○	○	○	○	○
119	Cresol	C ₇ H ₈ O		1.05		-	-	-	-	-	-	-	-	○	○	○	○	○
120	Crotonaldehyde	C ₅ H ₈ O	pure	0.85	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
121	Cyano Hydrogen Acid	HCN	pure	0.69	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
122	Cyclohexane	C ₆ H ₁₂	pure	0.78	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
123	Cyclohexanol	C ₆ H ₁₁ OH	pure	0.94		5	-	-	-	-	-	-	-	○	○	○	○	○
124	Decalin	C ₁₀ H ₁₈	pure	0.88		5	-	-	-	-	-	-	-	○	○	○	○	○
125	Dextrin	(C ₆ H ₁₀ O ₅) _x H ₂ O	18			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
126	Dibutyl Ether	C ₈ H ₁₈ OC ₄ H ₉	pure	0.77	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
127	Dibutyl Phthalate	C ₁₆ H ₂₂ (CO ₂ C ₄ H ₉) ₂	pure	1.05		-	-	-	-	-	-	-	-	-	-	○	-	-
128	Dichloro Acetic Acid	Cl ₂ CHCOOH	pure	1.56		-	-	⊗	-	○	⊗	-	⊗	○	○	○	-	-
129	Dichloro Difluormethane	CF ₂ Cl ₂	pure	1.32		-	-	-	-	-	-	-	-	-	-	-	-	-
130	Dichloro Ethane	ClCH ₂ CH ₂ Cl	pure	1.26	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
131	Dichloro Ethylene 1.1	Cl ₂ CCH ₂	pure	1.22	IIA	-	-	-	-	-	-	-	-	-	-	-	-	-
132	Dichloro Methane	CH ₂ Cl ₂	100	1.33		-	-	-	-	-	-	-	-	-	-	-	-	-
133	Diesel Fuel	Mixture	100			5, 6	-	-	-	-	-	-	-	○	○	○	○	○
134	Diethanolamine	HN(CH ₂ CH ₂ OH) ₂		1.1		-	-	-	-	-	-	-	-	-	-	-	-	-
135	Diethyl Ether	(CH ₃ CH ₂) ₂ O	100	0.71	IIB	-	-	-	-	-	-	-	-	-	-	-	-	-
136	Diethylamine	(CH ₃ CH ₂) ₂ NH	10	0.7	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
137	Diglycolic Acid	C ₄ H ₆ O ₅	30			1, 2, 3, 4, 5	○	○	○	○	⊗	⊗	○	○	○	○	-	-
138	Diglycolic Acid	C ₄ H ₆ O ₅	sat.			1, 2, 3, 4, 5	○	○	○	○	⊗	⊗	○	○	○	○	-	-
139	Dimethyl Benzene	C ₆ H ₄ (CH ₃) ₂	pure	0.86	IIA	-	-	-	-	-	-	-	-	-	-	-	-	-
140	Dimethyl Formamide	HCON(CH ₃) ₂	pure	0.95		-	-	-	-	-	-	-	-	-	-	-	-	-
141	Dimethylamine	C ₂ H ₇ N	pure	0.73		-	-	-	-	○	-	-	-	-	○	-	-	-
142	Dioxane	C ₆ H ₁₀ O ₂	pure	1.03	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
143	Ethanol	CH ₃ CH ₂ (OH)	pure	0.79	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
144	Ether	(C ₂ H ₅) ₂ O	pure	0.71	IIB	-	-	-	-	-	-	-	-	-	-	-	-	-
145	Ethereal Oils	Mixture				-	-	-	-	-	-	-	-	-	-	-	-	-
146	Ethyl Acetate	CH ₃ COOCH ₂ CH ₃	pure	0.9	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
147	Ethyl Acrylate	CH ₂ =CHCO ₂ CH ₂ CH ₃	pure		IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
148	Ethyl Alcohol	CH ₃ CH ₂ (OH)	pure	0.79	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
149	Ethyl Benzene	CH ₃ CH ₂ C ₆ H ₅	pure	0.87	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
150	Ethyl Chloride	C ₂ H ₅ Cl	pure	0.92		5	-	-	-	-	-	-	-	○	○	-	-	-
151	Ethyl Glycol	HOCH ₂ CH ₂ OH	pure	0.93	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
152	Ethylene Chlorohydrin	ClCH ₂ CH ₂ OH	pure	1.2	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
153	Ethylene Di- Bromide	Br(CH ₂) ₂ Br	pure	2.18		-	-	-	-	-	-	-	-	-	-	-	-	-
154	Ethylene Diamine	(CH ₂) ₂ (NH ₂) ₂	pure	0.98	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
155	Ethylene Dichloride	Cl(CH ₂) ₂ Cl	pure	1.26	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
156	Ethylene Glycol	(CH ₂ OH) ₂	pure	1.11		1.1, 2.1, 3.1, 5	○	○	○	○	○	○	○	○	○	○	○	○
157	Ethylene Oxide	(CH ₂) ₂ O	pure	0.89		-	-	-	-	-	-	-	-	-	-	-	-	-
158	Fatty Acids	C _n H _{2n+1} COOH	100	0.9		5	○	○	○	○	○	○	○	○	○	○	○	-
159	Ferric(III)Chloride	FeCl ₃	50	1.55		1, 2, 4, 5	-	○	-	-	-	-	-	○	○	○	-	-
160	Ferric(III)Sulfate	Fe ₂ (SO ₄) ₃	50	1.61		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
161	Ferrous(II)Chloride	FeCl ₂	10	1.09		1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	-	-
162	Ferrous(II)Chloride	FeCl ₂	50			1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	-	-
163	Ferrous(II)Nitrate	Fe(NO ₃) ₂	pure			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
164	Ferrous(II)Sulfate	FeSO ₄	20	1.21		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
165	Fish-Liver Oil	Mixture		0.98		5	○	○	○	○	○	○	○	○	○	○	○	○
166	Formaldehyde	HCHO	10			1.1, 2.1, 3.1, 5	○	○	○	○	○	○	○	○	○	○	○	-
167	Formaldehyde	HCHO	35			5	○	○	○	○	○	○	○	○	○	○	○	-
168	Formaldehyde	HCHO	40			5	○	○	○	○	○	○	○	○	○	○	○	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ⊗ = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1 style="margin: 0;">Chemical Resistance Table</h1> <h2 style="margin: 0;">Lutz Drum and Container Pumps, Flow Meters</h2> <h3 style="margin: 0;">Formamide – Lime Milk</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes									
							PP				B50		PVDF		Alu	
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP HC	Container pump B50 PP SS	PVDF-MS	PVDF-SL	Alu-MS	
No.	Medium	Formula														
169	Formamide	HCONH ₂	100		-		②	②	○	○	②	②	②	○	○	②
170	Formic Acid	HCOOH	50		-		②	②	○	○	②	②	②	○	○	-
171	Formic Acid	HCOOH	pure	1.22	IIA	8, 10	-	-	-	-	-	-	-	-	-	-
172	Freon 12	Cl ₂ CF ₂	pure	1.32	-		-	-	-	-	-	-	-	-	-	-
173	Fruit Juices	Mixture	h.ü.		3		○	○	○	-	○	○	○	-	-	-
174	Fuel Oil	Mixture	h.ü.		5, 6		-	-	-	-	-	-	○	○	○	○
175	Furfural	C ₄ H ₃ O ₂		1.16	-		-	-	-	-	-	-	-	-	-	-
176	Furfuryl Alcohol	C ₄ H ₅ O ₂	pure	1.13	-		-	-	-	-	-	-	-	-	②	-
177	Gallic Acid	C ₆ H ₃ (OH) ₃ COOH	50		1, 2, 3, 4, 5, 6		○	○	○	○	○	○	○	○	○	○
178	Glauber's Salt	Na ₂ SO ₄	50	1.46	1, 2, 3, 4, 5, 6		○	○	○	○	○	○	○	○	○	○
179	Gluconic Acid	C ₆ H ₁₂ O ₇			5		○	○	○	○	○	○	○	○	○	○
180	Glucose	C ₆ H ₁₂ O ₆	pure	1.13	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	-
181	Glycerine	C ₃ H ₈ O ₃	pure	1.26	5		○	○	○	○	○	○	○	○	○	○
182	Glycol	HOCH ₂ CH ₂ OH	pure	1.11	5, 1.1, 2.1, 3.1		○	○	○	○	○	○	○	○	○	○
183	Glycolic Acid	HOCH ₂ COOH	37		5		○	○	○	○	⑥	⑥	○	○	○	-
184	Glycolic Acid	HOCH ₂ COOH	70		5		-	○	-	○	⑥	-	○	○	○	-
185	Heptane	C ₇ H ₁₆	pure	0.68	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
186	Hexamethylene Tetramine	(CH ₂) ₆ N ₄	10		-		-	-	-	-	-	-	-	-	-	-
187	Hexane	C ₆ H ₁₄	pure	0.66	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
188	Hexanol	CH ₃ (CH ₂) ₄ CH ₂ OH		0.83	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
189	Hydrazine	H ₂ NNH ₂	pure		5		○	○	○	○	⑥	⑥	○	○	○	-
190	Hydrobromic Acid	HBr	10	1.07	-		-	-	-	-	-	-	-	-	-	-
191	Hydrobromic Acid	HBr	48	1.44	-		-	-	-	-	-	-	-	-	-	-
192	Hydrochloric Acid	HCl	10		1, 2, 4, 5		-	○	-	○	-	○	○	○	○	-
193	Hydrochloric Acid	HCl	30		1, 2, 4, 5		-	○	-	○	-	○	○	○	○	-
194	Hydrochloric Acid	HCl	sat.	1.2	5		-	○	-	○	-	○	○	○	○	-
195	Hydrocyanic Acid	HCN	pure	0.69	IIB	8, 10	-	-	-	-	-	-	-	-	-	-
196	Hydrofluoric Acid	HF	40	1.06	-		-	⑥	-	⑥	-	-	⑥	⑥	-	-
197	Hydrofluoric Acid	HF	60		-		-	-	-	⑥	-	-	-	⑥	-	-
198	Hydrofluoric Acid	HF	70	1.23	-		-	-	-	⑥	-	-	-	⑥	-	-
199	Hydrofluosilicic Acid	H ₂ SiF ₆	32		1, 2, 4, 5		-	○	-	○	-	○	○	○	○	-
200	Hydrogen Peroxide	H ₂ O ₂	3	1.01	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	○
201	Hydrogen Peroxide	H ₂ O ₂	10	1.04	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	○
202	Hydrogen Peroxide	H ₂ O ₂	20	1.07	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	○
203	Hydrogen Peroxide	H ₂ O ₂	30	1.11	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	○
204	Hydrogen Peroxide	H ₂ O ₂	90	1.42	5		-	-	-	-	-	○	○	○	○	○
205	Hydroiodic Acid	HJ	pure		-		-	-	-	○	⑥	⑥	-	○	-	-
206	Hydrosilicofluoric Acid	H ₂ SiF ₆	32	1.17	1, 2, 4, 5		-	○	-	○	⑥	⑥	○	○	○	-
207	Ink	Mixture	h.ü.	1	-		-	-	-	-	-	-	-	-	-	-
208	Iodine Tincture	Mixture	h.ü.		5		-	○	-	○	-	-	○	○	-	-
209	Iodoform	CHI ₃			1, 2, 3, 4, 5		○	○	○	○	-	-	○	○	-	-
210	Isobutyl Alcohol	C ₄ H ₉ CH ₂ OH	100	0.81	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
211	Isooctane	C ₈ H ₁₈	pure	0.69	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
212	Isooctanol	C ₈ H ₁₇ OH	pure	0.83	-		-	-	-	-	-	-	-	-	-	-
213	Isopropanol	(CH ₃) ₂ CHOH	pure	0.78	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
214	Isopropyl Acetate	CH ₃ COOCH(CH ₃) ₂		0.89	IIA	8, 10	-	-	-	-	-	-	-	-	-	-
215	Isopropyl Ether	(CH ₃) ₂ CHOCH(CH ₃) ₂	pure	0.73	IIA	8, 10	-	-	-	-	-	-	-	-	-	-
216	Kerosene	Mixture	pure	0.83	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-
217	Lactic Acid	CH ₃ CHOHCOOH	10		5		○	○	○	○	○	○	○	○	○	-
218	Lactic Acid	CH ₃ CHOHCOOH	90		5		○	○	○	○	○	○	○	○	○	-
219	Lanolin	Mixture	pure		5		○	○	○	○	○	○	○	○	○	-
220	Lead Acetate	Pb(CH ₃ CO) ₂	10		1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	-
221	Lead Acetate	Pb(CH ₃ CO) ₂	sat.		1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	-
222	Lead Nitrate	Pb(NO ₃) ₂	20	1.33	1, 2, 3, 4, 5		○	○	○	○	○	○	○	○	○	○
223	Lead Tetraethyl	(C ₂ H ₅) ₄ Pb	pure	1.66	1, 2, 3, 4, 5		○	○	○	○	-	-	○	○	-	-
224	Lime Milk	Ca(OH) ₂	15		-		○	○	-	-	○	○	○	-	-	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ① = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Linseed Oil – Perchloric Acid</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes											
							PP			B50		PVDF		Alu				
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP-HC	Container pump B50 PP-SS	PVDF-MS	PVDF-SL	Alu-MS			
No.	Medium	Formula																
225	Linseed Oil	Mixture	pure			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
226	Lithium Chloride	LiCl	45	1.3		5	-	○	-	○	○	○	○	○	○	○	○	-
227	Lithium Sulfate	Li ₂ SO ₄	25	1.23		5	○	○	○	○	○	○	○	○	○	○	○	-
228	Magnesium Carbonate	MgCO ₃				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
229	Magnesium Chloride	MgCl ₂	10			1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
230	Magnesium Chloride	MgCl ₂	sat.			1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
231	Magnesium Nitrate	Mg(NO ₃) ₂	25	1.21		3	Ⓣ	Ⓣ	○	○	Ⓣ	Ⓣ	Ⓣ	○	○	○	○	-
232	Magnesium Sulfate	MgSO ₄	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
233	Magnesium Sulfate	MgSO ₄	sat.	1.28		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
234	Maleic Acid	(CHCOOH) ₂	35			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
235	Maleic Acid	(CHCOOH) ₂	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
236	Malic Acid	(HO ₂ C)CH ₂ CHOH	50			5	○	○	○	○	○	○	○	○	○	○	○	-
237	Manganese(II)Chloride	MnCl ₂	20	1.19		5	-	○	-	○	○	-	○	○	○	○	○	-
238	Mercuric(I) Nitrate	Hg(NO ₃) ₂	sat.			1, 2, 3, 4, 5	○	○	○	○	Ⓣ	Ⓣ	○	○	○	○	○	-
239	Mercuric(II) Cyanide	Hg(CN) ₂	pure			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
240	Methanol	CH ₃ OH	pure	0.79	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
241	Methyl Acetate	CH ₃ CO ₂ CH ₃	100	0.93	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
242	Methyl Benzene	C ₆ H ₅ CH ₃	100	0.87	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
243	Methyl Cyanide	CH ₃ CN		0.78	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
244	Methyl Ethyl Ketone	CH ₃ COCH ₂ CH ₃	100	0.81	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
245	Methyl Glycol	CH ₃ OCH ₂ CH ₂ OH		0.98	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
246	Methyl Isobutyl Ketone	CH ₃ CH(CH ₃)CH ₂ COCH ₃		0.8	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
247	Methyl Pentanone	CH ₃ CH(CH ₃)CH ₂ COCH ₃		0.8	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
248	Methylene Chloride	CH ₂ Cl ₂	100	1.33		-	-	-	-	-	-	-	-	-	-	-	-	-
249	Milk	Mixture	h.ü.			-	○	○	-	-	Ⓣ	Ⓣ	Ⓣ	-	-	-	-	-
250	Mineral Oils	Mixture				6	-	-	-	-	-	-	○	○	○	○	○	○
251	Mineral Oils	Mixture		1.01	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
252	Mineral Water	H ₂ O				1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
253	Nail Polish Remover	CH ₃ COCH ₃	10		IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
254	Nail Polish Remover	CH ₃ COCH ₃	pure	0.79	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
255	Naphtha	Mixture				-	-	-	-	-	-	-	-	-	-	-	-	○
256	Naphthalene	C ₁₀ H ₈		1.15		5	-	-	-	-	-	-	-	○	○	○	○	○
257	Naphthenic Acid	Mixture	100	0.9		5	○	○	○	○	○	○	○	○	○	○	○	-
258	Nickel Chloride	NiCl ₂	20	1.22		1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
259	Nickel Nitrate	Ni(NO ₃) ₂ ·H ₂ O	35	1.38		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
260	Nickel Sulfate	NiSO ₄	10	1.21		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
261	Nitric Acid	HNO ₃	10	1.05		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
262	Nitric Acid	HNO ₃	30	1.18		5	-	-	-	-	-	-	-	○	○	○	○	-
263	Nitric Acid	HNO ₃	50	1.31		5	-	-	-	-	-	-	-	-	○	○	○	-
264	Nitric Acid	HNO ₃	65	1.41		5	-	-	-	-	-	-	-	-	○	○	○	-
265	Nitric Acid	HNO ₃	-	1.5		5	-	-	-	-	-	-	-	-	○	○	○	-
266	Nitrobenzene	C ₆ H ₅ NO ₂	pure	1.21		-	-	-	-	-	-	-	-	-	-	-	-	○
267	Nitrotoluene	C ₆ H ₄ NO ₂	pure			-	-	-	○	○	-	-	-	-	-	-	-	○
268	Octane	C ₈ H ₁₈	pure	0.7	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
269	Oleic Acid	C ₁₈ H ₃₄ O ₂	pure	0.9		5	-	-	-	-	-	-	-	○	○	○	○	○
270	Oleum	H ₂ SO ₄ /SO ₃				5	-	-	-	-	-	-	-	○	○	○	○	-
271	Oxalic Acid	(COOH) ₂	10			1, 2, 3, 4, 5	○	○	○	○	-	-	-	○	○	○	○	-
272	Oxalic Acid	(COOH) ₂	sat.	1.65		1, 2, 4, 5	-	○	-	○	○	-	-	○	○	○	○	-
273	Paraffin Oil	Mixture	pure			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
274	Peanut Oil	Mixture				-	○	○	○	-	-	-	-	○	-	-	-	○
275	Pentanol-1	CH ₃ (CH ₂) ₄ CH ₂ OH	pure	0.82	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
276	Pentyl Acetate	CH ₃ (CH ₂) ₄ CH ₂ COOCH ₃	pure	0.88	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
277	Perchloric Acid	HClO ₄	20			1.1, 2.1, 5	-	○	-	○	Ⓣ	-	○	○	○	○	○	-
278	Perchloric Acid	HClO ₄	50			5	-	-	-	-	Ⓣ	-	○	○	○	○	○	-
279	Perchloric Acid	HClO ₄	70			5	-	-	-	-	Ⓣ	-	○	○	○	○	○	-
280	Perchloric Acid	HClO ₄	sat.	1.55		-	-	-	-	-	Ⓣ	-	-	-	-	-	-	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant Ⓣ = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Perchloroethylene – Sea Water</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes										
							PP				B50		PVDF		Alu		
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP-HC	Container pump B50 PP-SS	PVDF-MS	PVDF-SL	Alu-MS		
No.	Medium	Formula															
281	Perchloroethylene	C ₂ Cl ₄	pure			5	-	-	-	-	-	-	○	○	-	-	-
282	Petrol	C ₁₂ -C ₁₆ H ₂₆	pure	0.73	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
283	Petroleum	Mixture	pure	0.83	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
284	Petroleum Ether	Mixture	pure	0.69	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
285	Phenol	C ₆ H ₅ OH	50		-	-	-	-	-	-	-	-	-	-	-	-	○
286	Phenol	C ₆ H ₅ OH	90	1.07	-	-	-	-	-	-	-	-	-	-	-	-	○
287	Phosphoric Acid	H ₃ PO ₄	30	1.18	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
288	Phosphoric Acid	H ₃ PO ₄	50		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
289	Phosphoric Acid	H ₃ PO ₄	85		5	○	○	○	○	○	○	○	○	○	○	○	-
290	Phosphoric Acid	H ₃ PO ₄	95	1.66	-	-	-	-	-	-	-	-	○	○	-	-	-
291	Phosphorous Oxichloride	POCl ₃	pure	1.57	5	○	○	○	○	○	⑥	⑥	○	○	-	-	-
292	Phosphorous Trichloride	PCl ₃	pure	1.57	5	○	○	○	○	○	⑥	⑥	○	○	-	-	-
293	Photographic Developer	Mixture	h.ü.		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
294	Phthalic Acid	C ₈ H ₆ O ₄	50		3, 4, 5	②	②	○	○	○	②	②	②	○	○	○	②
295	Phthalic Acid	C ₈ H ₆ O ₄	sat.	1.59	3, 4, 5	②	②	○	○	○	②	②	②	○	○	○	②
296	Picric Acid	(NO ₂) ₃ C ₆ H ₂ OH	50		5	-	-	-	-	-	⑥	-	○	○	-	-	-
297	Pine Oil	Mixture			-	-	-	-	-	-	-	-	-	-	-	-	-
298	Potassium Bromate	KBrO ₃	sat.		-	-	-	-	-	-	-	-	-	-	-	-	-
299	Potassium Bromide	KBr	10	1.37	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
300	Potassium Bromide	KBr	sat.		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
301	Potassium Carbonate	K ₂ CO ₃	sat.		1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
302	Potassium Chlorate	KClO ₃	50		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
303	Potassium Chloride	KCl	10		1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
304	Potassium Chloride	KCl	sat.	1.17	1, 2, 4, 5	-	○	-	○	○	-	○	○	○	○	○	-
305	Potassium Chromate	K ₂ CrO ₄	40		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
306	Potassium Cyanide	KCN	50		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
307	Potassium Cyanide	KCN	sat.	1.31	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
308	Potassium Dichromate	K ₂ Cr ₂ O ₇	40		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
309	Potassium Disulfate	K ₂ S ₂ O ₇		0.92	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
310	Potassium Ferricyanide	K ₃ Fe(CN) ₆	10		1, 2, 3, 4, 5	○	○	○	○	○	-	-	○	○	○	○	○
311	Potassium Ferricyanide	K ₃ Fe(CN) ₆	20	1.11	1, 2, 3, 4, 5	○	○	○	○	○	-	-	○	○	○	○	○
312	Potassium Ferricyanide	K ₃ Fe(CN) ₆	sat.		1, 2, 3, 4, 5	○	○	○	○	○	-	-	○	○	○	○	○
313	Potassium Ferrocyanide	K ₄ Fe(CN) ₆	10		5	○	○	○	○	○	-	-	○	○	○	○	○
314	Potassium Ferrocyanide	K ₄ Fe(CN) ₆	16	1.11	5	○	○	○	○	○	-	-	○	○	○	○	○
315	Potassium Ferrocyanide	K ₄ Fe(CN) ₆	sat.		5	○	○	○	○	○	-	-	○	○	○	○	○
316	Potassium Hydroxide	KOH	20	1.19	-	②	②	○	○	○	②	②	②	○	○	○	-
317	Potassium Hydroxide	KOH	30	1.29	-	②	②	○	○	○	②	②	②	○	○	○	-
318	Potassium Hydroxide	KOH	60	1.63	-	②	②	○	○	○	②	②	②	○	○	○	-
319	Potassium Hypochlorite	KOCl			1, 2, 4, 5	-	○	-	○	○	⑥	⑥	○	○	○	○	-
320	Potassium Iodide	KJ	50	1.55	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
321	Potassium Iodide	KJ	sat.		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
322	Potassium Nitrate	KNO ₃	10		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
323	Potassium Nitrate	KNO ₃	24	1.17	1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	○
324	Potassium Oxalate	K ₂ C ₂ O ₄ H ₂ O			5	○	○	○	○	○	⑥	⑥	○	○	-	-	-
325	Potassium Permanganate	KMnO ₄	6	1.04	5	○	○	○	○	○	⑥	⑥	○	○	○	○	○
326	Potassium Permanganate	KMnO ₄	18		5	○	○	○	○	○	⑥	⑥	○	○	○	○	○
327	Potassium Sulfate	K ₂ SO ₄	10	1.08	1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
328	Propanol	C ₃ H ₇ OH	100	0.8	IIB	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-
329	Propionic Acid	CH ₃ CH ₂ COOH	50		IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-
330	Propionic Acid	CH ₃ CH ₂ COOH	pure	0.99	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-
331	Propylene Glycol	C ₃ H ₇ (OH) ₂	pure	1.04	1, 2, 3, 4, 5, 6	○	○	○	○	○	-	-	○	○	○	○	○
332	Propylene Oxide	C ₃ H ₆ O	pure	0.83	IIB	8, 10	-	-	-	-	-	-	-	-	-	-	-
333	Pyrogallol	C ₃ H ₃ (OH) ₃	10		5	○	○	○	○	○	⑥	-	○	○	○	○	○
334	Salad Oil	Mixture	h.ü.		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○	○	○	○
335	Salicylic Acid	C ₇ H ₆ O ₃	50	1.48	5	○	○	○	○	○	⑥	⑥	○	○	○	○	○
336	Sea Water	H ₂ O			1, 2, 4, 5	-	○	-	○	○	○	-	○	○	-	-	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ① = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1>Chemical Resistance Table</h1> <h2>Lutz Drum and Container Pumps, Flow Meters</h2> <h3>Silicic Acid – Tin(II)Chloride</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes											
							PP			B50		PVDF		Alu				
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP-HC	Container pump B50 PP-SS	PVDF-MS	PVDF-SL	Alu-MS			
No.	Medium	Formula																
337	Silicic Acid	Si(OH) ₄	pure			1, 2, 3, 4, 5	○	○	○	○	⊕	⊕	○	○	-			
338	Silicone Oil	(R ₃ SiO) _x	pure			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
339	Silver Nitrate	AgNO ₃	8	1.07		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
340	Soap Solution	Mixture				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
341	Sodium Acetate	CH ₃ COONa	10			5	○	○	○	○	○	○	○	○	-			
342	Sodium Aluminate	Na ₂ Al ₂ O ₄				1, 2, 3, 4, 5	○	○	○	○	⊕	⊕	○	○	-			
343	Sodium Benzoate	C ₆ H ₅ NaO ₂	36			5	○	○	○	○	⊕	⊕	○	○	○			
344	Sodium Benzoate	C ₆ H ₅ NaO ₂	sat.			5	○	○	○	○	⊕	⊕	○	○	○			
345	Sodium Bicarbonate	NaHCO ₃	10	1.07		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
346	Sodium Carbonate	Na ₂ CO ₃	25	1.27		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
347	Sodium Chlorate	NaClO ₃	25	1.23		1, 2, 3, 4, 5	○	○	○	○	⊕	⊕	○	○	-			
348	Sodium Chloride	NaCl	20			1, 2, 4, 5	-	○	-	○	-	○	○	○	-			
349	Sodium Dichromate	Na ₂ Cr ₂ O ₇	10			5	○	○	○	○	○	○	○	○	○			
350	Sodium Fluoride	NaF	4	1.04		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
351	Sodium Hydrogen Sulphate	NaHSO ₄	50	1.16		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
352	Sodium Hydrogen Sulphite	NaHSO ₃				1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
353	Sodium Hydroxide	NaOH	10	1.16		3	⊗	⊗	○	○	⊗	⊗	⊗	○	-			
354	Sodium Hydroxide	NaOH	30	1.33		3	⊗	⊗	○	○	⊗	⊗	⊗	○	-			
355	Sodium Hydroxide	NaOH	50	1.53		3.1	⊗	⊗	○	○	⊗	⊗	⊗	○	-			
356	Sodium Hypochlorite	NaClO	10			5	-	-	-	-	-	-	○	○	-			
357	Sodium Hypochlorite	NaClO	12,5			5	-	-	-	-	-	-	○	○	-			
358	Sodium Hypochlorite	NaClO	20			5	-	-	-	-	-	-	○	○	-			
359	Sodium Nitrate	NaNO ₃	45	1.37		1, 2, 3, 4, 5, 6	○	○	○	○	⊕	⊕	○	○	○			
360	Sodium Nitrite	NaNO ₂	50			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
361	Sodium Perchlorate	NaClO ₄	25	1.18		-	-	-	○	○	-	-	-	○	-			
362	Sodium Phosphate	Na ₃ PO ₄	10			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
363	Sodium Silicate	2Na ₂ OxSiO ₂	20	1.24		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
364	Sodium Sulfate	Na ₂ SO ₄	50	1.46		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
365	Sodium Sulfide	Na ₂ S	16	1.16		1, 2, 3, 4, 5	○	○	○	○	⊕	⊕	○	○	-			
366	Sodium Sulfite	Na ₂ SO ₃	sat.	1.18		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
367	Sodium Thiosulfate	Na ₂ S ₂ O ₃	40			1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
368	Solvent Naphtha	Mixture		0.72	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-			
369	Spindle Oil	Mixture	pure			5	○	○	○	○	○	○	○	○	○			
370	Stearic Acid	CH ₃ (CH ₂) ₁₆ CO ₂ H	100	0.94		1, 2, 3, 4, 5, 6	○	○	○	○	○	○	○	○	○			
371	Styrol	C ₆ H ₅ -CH=CH ₂	pure	0.91	IIA	8, 10	-	-	-	-	-	-	-	-	-			
372	Succinic Acid	C ₄ H ₆ O ₄	50	1.06		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○			
373	Sulphite Liquor	Ca(HSO ₃) ₂	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
374	Sulphite Liquor	Ca(HSO ₃) ₂	sat.			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
375	Sulphur Chloride	S ₂ Cl ₂	10	1.69		5	-	-	-	-	-	-	○	○	-			
376	Sulphur Ether	(C ₂ H ₅) ₂ O	pure	0.71	IIB	-	-	-	-	-	-	-	-	-	-			
377	Sulphuric Acid	H ₂ SO ₄	40	1.3		1, 2, 4, 5	-	○	-	○	-	-	○	○	-			
378	Sulphuric Acid	H ₂ SO ₄	80	1.66		5	-	○	-	○	-	-	○	○	-			
379	Sulphuric Acid	H ₂ SO ₄	90	1.73		5	○	○	○	○	-	-	○	○	-			
380	Sulphuric Acid	H ₂ SO ₄	98	1.84		5	-	-	-	-	-	-	○	○	-			
381	Sulphurous Acid	H ₂ SO ₃	50			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	-			
382	Table Salt	NaCl	25			1, 2, 4, 5	-	○	-	○	-	-	○	○	-			
383	Tannic Acid	H ₂ H ₂ O ₆	50			1, 2, 3, 4, 5	○	○	○	○	⊕	⊕	○	○	-			
384	Tanning Extracts. vegetable	Mixture	h.ü.			1, 2, 3, 4, 5, 6	○	○	○	○	⊕	⊕	○	○	○			
385	Tartaric Acid	C ₄ H ₆ O ₆	sat.	1.76		5	○	○	○	○	○	○	○	○	-			
386	Tetrachloroethane	Cl ₂ CHCHCl ₂	pure	1.6		-	-	-	-	-	-	-	-	○	-			
387	Tetrachloromethane	CCl ₄	pure	1.59		5	-	-	-	-	-	-	○	○	-			
388	Tetrahydrofuran	C ₄ H ₈ O	pure	0.89	IIB	8, 10	-	-	-	-	-	-	-	-	-			
389	Tetralin	C ₁₀ H ₈	100	0.97		-	-	-	-	-	-	-	-	-	○			
390	Thionyl Chloride	SOCl ₂	pure	1.66		-	-	-	-	-	-	-	-	-	-			
391	Thiophene	C ₄ H ₄ S	pure	1.06	IIA	8, 10	-	-	-	-	-	-	-	-	-			
392	Tin(II)Chloride	SnCl ₂	20	1.17		1, 2, 4, 5	-	○	-	○	○	-	○	○	-			

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ⊕ = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

<h1 style="margin: 0;">Chemical Resistance Table</h1> <h2 style="margin: 0;">Lutz Drum and Container Pumps, Flow Meters</h2> <h3 style="margin: 0;">Toluene – Zinc Sulfate</h3>			concentration in %	Spec. gravity kg/dm ³	Explosion Group	Suitable Pump set No.	Lutz - Pump Tubes											
							PP			B50		PVDF		Alu				
							PP-MS-SS, RE-PP-MS, MP-PP-MS	PP-MS-HC	PP-SL-SS	B2 Vario PP-SL, PP-SL-HC Battery Pump B1 PP-SL	Container pump B50 PP HC	Container pump B50 PP SS	PVDF-MS	PVDF-SL	Alu-MS			
No.	Medium	Formula																
393	Toluene	C ₆ H ₆	100	0.87	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
394	Transformer Oil	Mixture	pure			-	-	-	-	-	-	-	-	-	-	-	-	○
395	Tributyl Phosphate	(C ₄ H ₉) ₃ PO	pure	0.98		-	②	②	○	○	-	-	②	○	○	○	○	②
396	Trichloroacetic Acid	CCl ₃ COOH	50			-	-	-	○	⑥	⑥	-	○	○	-	-	-	-
397	Trichloroacetic Acid	CCl ₃ COOH	pure	1.62		-	-	-	○	⑥	⑥	-	○	○	-	-	-	-
398	Trichlorobenzene	C ₆ H ₃ Cl ₃		1.69		-	-	-	-	-	-	-	-	-	-	-	-	-
399	Trichloroethane	C ₂ H ₃ Cl ₃	pure	1.48		5	-	-	-	-	-	-	○	○	-	-	-	-
400	Trichloroethylene	C ₂ HCl ₃	50			5	-	-	-	-	-	-	○	○	-	-	-	-
401	Trichloroethylene	C ₂ HCl ₃	pure	1.46		5	-	-	-	-	-	-	○	○	-	-	-	○
402	Trichlorofluoromethane	CFCl ₃	pure	1.32		-	-	-	-	-	-	-	-	-	-	-	-	-
403	Trichloromethane	CHCl ₃	100	1.48		-	-	-	-	-	-	-	-	-	-	-	-	○
404	Tricresyl Phosphate	(CH ₃ C ₆ H ₄ O) ₃ PO	pure	1.13		-	-	-	○	○	-	-	-	-	-	-	-	-
405	Triethylamine	(CH ₃ CH ₂) ₃ N	pure	0.73	IIA	7, 8, 9, 10	-	-	-	-	-	-	-	-	-	-	-	-
406	Turpentine Oil	Mixture	h.ü.	0.86		-	-	-	-	-	-	-	-	-	-	-	-	○
407	Urea	H ₂ NCONH ₂	10			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
408	Urea	H ₂ NCONH ₂	33			1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
409	Urine	Mixture				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
410	Vinegar	CH ₃ COOH	h.ü.			5	○	○	○	○	○	○	○	○	○	○	○	-
411	Vinyl Acetate	CH ₂ =CHOOCCH ₃	pure	0.93	IIA	8, 10	-	-	-	-	-	-	-	-	-	-	-	-
412	Vinylidene Chloride	CH ₂ =CCl ₂	pure	1.25	IIA	-	-	-	-	-	-	-	-	-	-	-	-	-
413	Water	H ₂ O		1		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
414	Water Glass	Me _n O _n SiO ₂	20	1.24		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
415	Xylene	C ₆ H ₄ (CH ₃) ₂	pure	0.86	IIA	-	-	-	-	-	-	-	-	-	-	-	-	-
416	Zinc Chloride	ZnCl ₂	20	1.19		5	○	○	○	○	○	○	○	○	○	○	○	-
417	Zinc Chloride	ZnCl ₂	75	2.07		5	○	○	○	○	○	○	○	○	○	○	○	-
418	Zinc Salts	Mixture				1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
419	Zinc Sulfate	ZnSO ₄	10	1.11		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-
420	Zinc Sulfate	ZnSO ₄	sat.	1.38		1, 2, 3, 4, 5	○	○	○	○	○	○	○	○	○	○	○	-

Meaning of symbols: ○ = Resistant „-“ = Non-resistant ① = conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)
Explanation to the set-recommendation: „Pump set no“.1 = PVC-Hose conditional stable (danger of discoloration and for embrittlement in dependence of the short working period)

Finding your way around the Lutz chemical resistance table

1. General

This chemical resistance table contains reasonably concise information about the chemical resistance characteristics of the different types of pump tubes and flow meters to various media. The materials coming into contact with the liquids which are employed in the pump tubes have been tested with regard to their chemical resistances and assessed for use at room temperature.

The chemical resistance table is intended as a guide to the suitability of each pump tube; it also specifies any materials which are wholly unsuitable for certain concrete applications. Please do not hesitate to consult us directly if you are unable to find the most suitable material for your pump tube.

In cases where the resistance characteristics cannot be verified, or where any other reservations exist regarding the use of a particular combination of materials, we strongly recommend trying out the equipment under operating conditions. We can provide samples of various materials on request. It should be remembered that discolouring on the surface, minor increases in the weight and/or volume and changes to the mechanical properties (strain characteristics, strength properties, etc.) do not necessarily affect functioning to a sufficient extent to preclude the use of a material.

Since corrosion is influenced by a variety of factors, the information contained in the table cannot necessarily be applied to all operating conditions. Corrosion may be accelerated by temperature increases, by medium concentrations or by the entry of water into media which are otherwise pure. Discrepancies regarding the long-term resistance of plastics and elastomers are also possible, depending on the amount of impurities in the medium as well as on the compounding and degree of vulcanisation of the sealing materials.

The table specifications are based on the assumption that no other mechanical forces are effective.

2. How to use the table

The corrosive media are arranged in the table in alphabetical order.

The table is an extremely reliable guide to the behaviour of corrosive media at room temperature, since a large part of the information it contains was only available for a temperature of 20 °C.

In view of the continuing advances in the field of plastics, extensive suitability tests may reveal that some of the materials employed in our pumps can be substituted or that others which are not mentioned can in fact be used. New materials are therefore likely to be added to the table at some stage in the future. At the same time we are constantly endeavouring to eliminate any gaps in our information.

All the information in the chemical resistance table is based on empirical values supplied by industry and on the results of tests performed in our own laboratories. The resistance data specified for the individual products do not provide any entitlement to make warranty claims, since it is merely intended to serve as a recommendation for practical applications.

You can make your product choice more reliable by taking account of your own experience with regard to the resistance of particular materials to aggressive media.

Meaning of symbols:

- = resistant
- ① = resistant up to medium temperature + 22 °C
- ② = resistant up to medium temperature + 48 °C
- = conditionally stable
- ① = conditionally resistant up to medium temperature + 22 °C
- ② = conditionally resistant up to medium temperature + 48 °C
- = non resistant

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Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „—“ = Non-resistant
□ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

0-Chlorophenol – Amyl Acetate

No.	Medium	Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
1	0-Chlorophenol	-		○	□	□	-	-	-	-			□	○
2	0-Dichlorobenzene		①	○66°C	□	-	-	-	-	-	-	-	○	○
3	1-Chloronaphthalene		-		□	-	-	-	-	-	-	-	-	○
4	1-Nitropropane				○	○	-	○	-	-	○	-	-	○
5	Acetaldehyde	□	-	-	○	□	-	□	-	-	□	-	-	○
6	Acetamide	○	①	①	○	○	○	○	○	□	○	-	□	○
7	Acetate Solvent	○	①	○	○	○	-	□	-	-	□	-	-	○
8	Acetic Acid 20%	-	□	○	○	□	-	○	-	□	○	-	-	○
9	Acetic Acid 80%	-	□	○66°C	□	□	-	-	-	-	○	-	-	○
10	Acetic Acid, Glacial	-	□	②	○	□	-	□	-	-	○	-	-	○
11	Acetic Anhydride	□	①	①	○	□	-	□	-	□	○	-	-	○
12	Acetone	①	-	-	○	○	-	○	-	-	○	-	-	○
13	Acetone Cyanohydrin				□	○	-	-	-	□	□	-	-	○
14	Acetonitrile (Methyl Cyanide)	○	□	○52°C	○	○	-	○	-	○	□	-	-	○
15	Acetophenone (Phenyl Methyl Ketone)	○	①	○	□	□	-	□	-	-	□	-	-	○
16	Acetyl Acetone (2,4-Pentanedione)				□	-	-	○	-	-	□	-	-	○
17	Acetyl Chloride	-	-	②	□	-	-	-	-	-	□	-	□	○
18	Acetyl Salicylic Acid (Aspirin)				□	○		□		-				○
19	Acetylene (Ethyne)	□	-	○	○	○	○	○	○	-	-		○	○
20	Acetylene Tetrabromide (Tetra Bromoethane)				○	-	-	-	-	-			○	○
21	Acrolein (Acrylaldehyde)				□	○	□		□				○	○
22	Acrylonitrile	①	□	①	○	□	-	-	-	-	□	-	-	○
23	Adipic Acid		②	②	□	□	-	□	○	-	□	○	②	○
24	Allyl Chloride (3-Chloropropene)		○	○	□	-	-	-	-	-			□	○
25	Aluminum Acetate (Burow's Solution)	○	○	○	□	○	-	○	-	-	○	□	-	○
26	Aluminum Bromide			-			○		○	○				○
27	Aluminum Chloride	-	○	○	□	-	○	○	○	○	○	□	○	○
28	Aluminum Fluoride	□	○	○	-	①	○	○	○	○	○	-	○	○
29	Aluminum Hydroxide	□	○	○	□	①	○	○	○	○	○		○	○
30	Aluminum Nitrate	□	②	○	○	-	②	○	○	○	○	-	○	○
31	Aluminum Potassium Sulfate	-	○	○	□	-	○	○	○	○	○		○	○
32	Aluminum Sulfate	②	○	○	○50%	□30%	○	○	○	○	○	-	○	○
33	Alums	○	○		○	○	○	①	○	□	①		○	○
34	Amines	-	②		○	□	-	□	-	□	○	-	-	②
35	Ammonia 10%	○	②	○	○	②	□	○	○	○	○	□	-	○
36	Ammonia Nitrate	-	○	○	○	-	-	○	-	-	○	□	-	○
37	Ammonia, anhydrous	①	○	○	②	□	□	○	□	○	○	-	-	○
38	Ammonia, liquid	①	②	○	②	-	-	○	-	○	○	□	○	○
39	Ammonium Acetate	○	○	①	○	○	□	○	□	○		-	○	○
40	Ammonium Bifluoride*			○66°C	①	-	□	②	□	-	○		○	-
41	Ammonium Carbonate	○	○	○	□	□	-	○	-	○	○	□	○	○
42	Ammonium Caseinate				○						○	○		
43	Ammonium Chloride	□	○	○	②	-	□	○	□	□	○	□	○	○
44	Ammonium Dichromate			-	-	○	○	○	○	○	○			○
45	Ammonium Hydroxide	□	○	○	①	□	□	○	□	○	○	-	□	○
46	Ammonium Nitrate	□	○	○	○	①	○	○	○	□	○	-	□	○
47	Ammonium Oxalate				○	○	○	○	○	○	○			
48	Ammonium Persulfate	-	○	①	○	-	-	□	-	○	○	-	○	○
49	Ammonium Phosphate, Dibasic	-	○	○	○	□	○	○	○	○	○		○	○
50	Ammonium Phosphate, Monobasic	□	○	○	○	□	○		○	○	○		○	○
51	Ammonium Phosphate, Tribasic	□	○	○	○	□	○		○	○	○		○	○
52	Ammonium Sulfate	□	○	○	□	□	○	○	○	○	○	○	-	○
53	Ammonium Sulfide			②	□	□	○		○	○		□	○	○
54	Ammonium Sulfite	①	②		□	-	①		①				-	②
55	Ammonium Thiosulfate				○	-	○	①	○	○	○		○	○
56	Amyl Acetate (Banana Oil) (See Oils)													

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C
 * Do not use glass filled polypropylene pumps (DMP 1" clamped version)

<h1>Chemical Resistance Table</h1> <h2>Lutz Double Diaphragm Pumps</h2> <h3>Amyl Chloride – Brewery Slop</h3>		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
No.	Medium													
57	Amyl Chloride	-	-	○	○	-	-	-	-	-	-	-	○	○
58	Amyl alcohol	①	①	○	○	□	□	○	□	□	○	-	□	○
59	Aniline Dyes				□	□	-	-	-	-	□	-	□	○
60	Aniline Hydrochloride	-	-	①	-	-	-	□	-	-	○	-	□	○
61	Animal Fats & Oils				○	○	○	□	○	-	□	□	○	○
62	Anisole (Methylphenyl Ether)				□	□			-			-		○
63	Antifreeze (Glycol Base)	-	②	○	○	○	○	○	○	○	○	□	○	○
64	Antimony	-	○	①	○		○			○	○		○	○
65	Antimony Pentachloride				○	○	-	-						○
66	Antimony Trichloride	-	○	○	□	○	□	○	□		○		②	○
67	Aqua Regia (80% HCl, 20% HNO3)	-	-	①	-	-	-	-	-	-	-	-	□	○
68	Arochlor 1248	①	-	-	○	○	-	-	-	-	-	-	○	○
69	Aromatic Hydrocarbons	○	-	-	○	○	-	-	-	-	-	-	○	○
70	Arsenic	-	○		○		○			○	○		○	○
71	Arsenic Acid	-	○	○	②	-	②	②	②	○	○	-	②	○
72	Arsenic Trichloride (Arsenic Butter)				-	□	-	□	-	○	□	-	-	○
73	Askarel® (Pyranol®)				○		□	-	□	-	-	-	-	○
74	Asphalt	○	○	○	○	○	□	-	□	-	□	□	①	○
75	Asphalt Sealer	○	○	○	○	○	-	-	-	○		-	-	○
76	ASTM Ref #1 Oil (High Aniline)				○	○	○	-	○	□	○	○	○	○
77	ASTM Ref #2 Oil (Medium Aniline)				○	○	○	-	○	□	○	□	○	○
78	ASTM Ref #3 Oil (Low Aniline)				○	○	○	-	○	-	○	□	○	○
79	ASTM Ref #4 Oil (High Aniline)				○	○	□	-	□	-	□		○	○
80	ASTM reference fuel A				○	○	○	-	○	□		○	○	○
81	ASTM reference fuel B				○	○	○	-	○	-		-	○	○
82	ASTM reference fuel C				○	○	○	-	□	-		-	○	○
83	Aviation Gasoline				○	○	○	-	○	-			○	○
84	Barbeque Sauce (Waters,Oils, Spices)			○	○		○		○	○				○
85	Barium Carbonate	①	○	○	○	□	②	○	②	○	○	□	○	○
86	Barium Chloride	-	○	○	-	-	○	○	○	○	○	○	○	○
87	Barium Chloride Dihydrate	□	○	○	□	□ 50%	○	○	○	○			○	○
88	Barium Cyanide	-	-	-	○	-	-	○	-	-	○		○	-
89	Barium Hydroxide (Barium Hydrate)	-	○	○	②	-	○	○	○	○	○	○	○	○
90	Barium Nitrate	□	-	○	○	-	②	○	②	○	○	○	○	○
91	Barium Sulfate	-	○	○	①	□	○	○	○	○	○	○	○	○
92	Barium Sulfide	①	○	○	②	-	○	○	○	○	○	○	○	○
93	Beer	□	□	○	○	○	○	○	○	○	○	-	○	○
94	Beet Sugar Liquids or liquors	○	①	○	○	○	○	○	○	○	○	-	○	○
95	Benzaldehyde	-	-	①	○	□	-	□	-	-	□	-	-	○
96	Benzene	①	-	②	②	□	-	-	-	-	□	-	□	○
97	Benzene Sulfonic Acid	-	-	②	□	-	-	-	-	○	○	-	○	○
98	Benzoic Acid	-	-	○	○	□	-	□	○	□	○	-	○	○
99	Benzyl Acetate				○	○	-		-			-		○
100	Benzyl Benzoate				□	○	-	□	-	-	-	-	○	○
101	Benzyl Chloride (Chlorotoluene)	②	-	-	□	-	-	-	-	-	-	-	-	○
102	Benzyl Dichloride (Benzal Chloride)				○	-	-	-	-	-	-	-	-	○
103	Benzylalcohol	-	○	○	○	□	-	□	-	-	○		○	○
104	Biphenyl (Diphenyl)					○	-	-	-	-			○	○
105	Bismuth Subcarbonate (Bismuth Carbonate)				□ 10%		○	○	○	○	○		○	○
106	Black Sulfate Liquor				○	-	□	○	□	○	○	-	○	○
107	Bleaching solutions	-	□	○	□	-	-	○	-	-	○		○	○
108	Borax (Sodium Borate)	○	○	○	○	①	□	○	□	○	○	○	○	○
109	Boric Acid	□	○	○	①	○	○	○	○	○	○	○	○	○
110	Brake Fluid (Non-Petroleum Base)	□	-		○	○	-	○	-	○				○
111	Brass	○	○	○	○		○			○	○		○	○
112	Brewery Slop				○		○			○	○		○	○

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Bromine – Carbon Disulfide

No. Medium		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
113	Bromine		-	○66°C	-	-	-	-	-	-	-	-	○	○
114	Bromine Trifluoride		-		□	-	-	-	-	-	-	-	-	○
115	Bromine Water		-	○	-	-	-	-	-	□	□	-	□	○
116	Bromobenzene		-	②	○	-	-	-	-	-	-	-	□	○
117	Bromochloromethane				□	-	-	□	-	-	-	-	-	○
118	Bromotoluene				○	-	-	-	-	-	-	-	□	○
119	Bronze	○	○		○		○			○	○		○	
120	Bronzing Liquid				○		-	□	-	-	○	-	-	○
121	Bunker Oil (Fuel) #5,#6 & C (Hydrocarbons)				○	○	○	-	○	□	□	□	○	○
122	Butadiene	-	-	○	①	○	-	-	-	-	-	-	□	②
123	Butane	①	①	○	②	○	○	○	○	□	-	-	○	○
124	Butter			○	○	○	○	○	○	-	□		○	○
125	Buttermilk	①	○	○	○	○	○	①	○	○	○		○	○
126	Butyl Acetate	○	-	①	○	○	-	□	-	-	○	-	-	○
127	Butyl Acetyl Ricinoleate				○	○	-	-	-	-	□	-	□	○
128	Butyl Acrylate		-	②			-	-	-	-	-	-	-	○
129	Butyl Amine	○	-	①	○	○	□	-	-	-	○	-	-	○
130	Butyl Benzoate				□	□		□		-	-	-	○	○
131	Butyl Butyrate				○	○	-	-	-	-	-	-	-	○
132	Butyl Carbitol®						○	○	○	□	□		○	○
133	Butyl Ether	②	-	①	○	○	○	-	○	□	-	-	-	○
134	Butyl Oleate												○	○
135	Butyl Phthalate	②	②	①	②	②	-	-	-	-	-	-	-	②
136	Butyl Stearate			○	□	□	○	-	○	-	-	-	□	○
137	Butylalcohol	□	○	○	○	□	○	□	○	□	○	□	○	○
138	Butylene (Butene)	①	-	○	○	○	□	-	○	-	-	-	□	○
139	Butyraldehyde	-		②	○	○	-	-	-	-	-	-	-	○
140	Butyric Acid	-	○	○	○	□	-	□	-	-	○	-	-	○
141	Butyric Anhydride				○	○	-	-	-	-	-	-	-	○
142	Butyronitrile						-	○	-	-	-	-	-	○
143	Calcium Acetate Hydrate				□	-	□	○	□	-	-	-	-	○
144	Calcium Bisulfate			○	□		○	○	○	○				○
145	Calcium Bisulfide	○	○	○	□	-	①	-	①	○	-	○	○	○
146	Calcium Bisulfite	□	○	○	○	-	○	-	○	○		○	○	○
147	Calcium Carbonate (Chalk)	○	○	○	□	-	○	○	○	○	○	-	○	○
148	Calcium Chlorate		○	○	□30%	□30%	○	○	○	○			○	○
149	Calcium Chloride	□	○	○	-	-	○	○	○	○	○	○	○	○
150	Calcium Hydroxide (Slaked Lime)	②	○	○	□	-	○	○	○	○	○	○	○	○
151	Calcium Hypochlorite, 20% (Calcium Oxichloride)	-	○	○	□	-	-	①	-	-	○	-	□	○
152	Calcium Nitrate	-	○	○	□40%	□40%	○	○	○	○	○	○	②	②
153	Calcium Oxide	□	○	○	○	-	○	○	○	○	○	□	○	○
154	Calcium Silicate				○	○	○		○				○	○
155	Calcium Sulfate	-	○	○	○10%	-	○	○	○	□	○		○	○
156	Calcium Sulfide		②	○	□	○	○	○	○	□	○	○	○	○
157	Calcium Sulfite				○10%	□10%	○		○				○	○
158	Calgon®	○	○		○		○		○	○	○		○	○
159	Cane Juice	○	-	○	○	□	○	○	○	○	○		○	○
160	Cane Sugar Liquors		○	○	○	○	○	○	○	○	○	-	○	○
161	Capryl Alcohol (Octanol)				○	○	○	-		□			□	○
162	Caprylic Acid (Octanoic Acid)			○79°C	○	○	-	-	-					○
163	Carbamate						-	-	-	□	○	-	○	○
164	Carbitol®		-	○	□	□	□	-	□	-	□	-	-	○
165	Carbolic Acid (Phenol)	-	-	②	□	□	-	-	-	-	□	-	○	○
166	Carbon Bisulfide	○	-	○	□	□	-	-	-	-	-	-	○	○
167	Carbon Dioxide (wet)	①	②	○	①	①	○	□	○	□	○	○	□	○
168	Carbon Disulfide	□	-	①	○90%	○	-	-	-	-	-	-	○	○

The information in this chart has been supplied by reputable sources and is to be used ONLY as a guide in selecting equipment for appropriate compatibility. This does not warrant that the information in this chart is accurate or complete or that any material is suitable for any purpose.

<h1>Chemical Resistance Table</h1> <h2>Lutz Double Diaphragm Pumps</h2> <h3>Carbon Monoxide – Dextrose</h3>		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
No.	Medium													
169	Carbon Monoxide	○	○	○	○	○	□	○	○	○	○	○	○	○
170	Carbon Tetrachloride (Tetrachloromethane)	-	-	○	②	-	-	-	-	-	-	-	○	○
171	Carbonated Water	○	○	○	○	○	○	○	○	○	○	○	○	○
172	Carbonic Acid	□	○	○	□	○	□	□	○	○	○	○	○	○
173	Casein (a phosphoprotein)				□	□	○	○	○	○			○	○
174	Catsup (Ketchup)	○	○	○	○	-	○	○	○	○			○	○
175	Cellosolve® (Glycol Ethers)	○	②	○	□	□	-	-	-	-	-	-	□	○
176	Cellulose Acetate				○	□	□	□	□	□			-	○
177	Cellulube® Hydraulic Fluids (Phosphate Ethers)				○	□	-	-	-	-	-	-	□	○
178	Chloric Acid	-	①	○	-	-	-	-	-	-	-	-	-	○
179	Chlorinated Glue				○	-	□	□	□	-	□	-	○	○
180	Chlorinated Lime - 35% Bleach				○	-	-	○	-	-	○	-	○	○
181	Chlorine Dioxide	-	-	○66°C	-	-	-	-	-	-	-	-	○	○
182	Chlorine Trifluoride	-	-	-	○	-	-	-	-	-	-	-	□	○
183	Chlorine Water	-	-	□	-	-	-	-	-	-	-	-	○	○
184	Chlorine, (wet)	-	-	○	-	-	-	-	-	-	-	-	○	○
185	Chlorine, Anhydrous Liquid	-	-	○	-	-	-	-	-	-	-	-	○	○
186	Chloroacetic Acid	-	○	-	-	-	-	-	-	-	-	-	-	○
187	Chloroacetone (Monochloroacetone)				□	-	-	○	-	-	-	-	-	○
188	Chlorobenzene (Mono)	①	-	②	□	-	-	-	-	-	-	-	○	○
189	Chlorobromomethane				□	-	-	-	-	-	-	-	○	○
190	Chlorobutadiene (Chloroprene)				□	-	-	-	-	-	-	-	○	○
191	Chloroform	-	-	○	○	-	-	-	-	-	-	-	○	○
192	Chlorosulfonic Acid	-	-	-	□	□	-	-	-	-	○	-	-	○
193	Chlorothene® (Chlorinated Solvents)			○	○	-	-	-	-	-	-	-	-	○
194	Chlorox® (Bleach)		□	○	□	-	-	□	-	□	□	-	○	○
195	Chocolate Syrup	○	○	○	○	○	○	○	○	○	○	-	○	○
196	Chromic Acid to 25%	-	①	②	□	-	-	○	○	-	○	-	○	○
197	Chromic Acid over 25%	-	-	②	□	-	-	○	-	-	○	-	○	○
198	Cider			②	○	□	○	○	○	○	○	○	○	○
199	Citric Acid	①	○	○	○	-	○	○	○	○	○	○	○	○
200	Cobalt Chloride		○			-	○	-	○	○	○	-	○	○
201	Coffee	○	○	○	○	○	○	○	○	○	○	-	○	○
202	Copper	○	○	○	○	○	○	○	○	○	○	-	○	○
203	Copper Acetate			○	□10%	-	□	○	□	□	○	-	-	○
204	Copper Chloride	○	○	○	○	-	○	○	○	○	○	○	○	○
205	Copper Cyanide	①	○	○	○	-	○	○	○	○	○	○	○	○
206	Copper Fluoborate (Fluoroborate)				-	-	□	□	○	○	○	-	○	○
207	Copper Nitrate	-	○	○	○	-	○	○	○	○	○	-	○	○
208	Copper Nitrate Hexahydrate	-	○	○	○	-	○	○	○	○	○	-	○	○
209	Copper Sulfate	-	○	○	○	-	○	○	○	○	○	○	○	○
210	Cream	○	○	○	○	○	○	○	○	-	○	-	○	○
211	Creosote, Coal-Tar (Tar Oil)	-	-	②	□	□	○	-	○	-	□	-	○	○
212	Creosote, Wood-Tar	-	-	②	□	□	○	-	○	□	-	-	○	○
213	Cresylic Acid (Cresol)	-	-	②	○	②	-	-	-	-	□	-	○	○
214	Crotonaldehyde				○	○	-	-	-	○	-	-	○	○
215	Cumeme (Isopropylbenzene)				□	□	-	-	-	-	-	-	○	○
216	Cupric Acid	-	②		②	-	②	②	②	②	②	-	②	○
217	Cyanic Acid				○	-	-	-	-	-	-	-	○	○
218	Cyclohexane	○	-	○	○	□	□	-	○	-	-	□	○	○
219	Cyclohexanol	□	□	②	○	-	□	-	□	○	□	-	○	○
220	Cyclohexanone	○	-	①	□	□	-	-	-	-	□	-	-	○
221	Decahydronaphthalene (Decalin®)			②			-	-	-	-	-	-	○	○
222	Decane			○			□	-	○	-	-	□	○	○
223	Detergents	○	○		○	□	○	○	○	□	□	○	○	○
224	Dextrose				○	○	□	○	□	□	○	-	○	○

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Diacetonealcohol – Ethyl Benzoate

No.	Medium	Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
225	Diacetonealcohol	○	②	①	○	○	-	□	-	-	-	□	-	○
226	Dibenzyl Ether				□	□	-	-	-	-	-	□	-	○
227	Dibenzyl Sebecate						-	-	-	-	-	-	□	○
228	Dibutyl Amine		○		-		-	-	-	-	□		□	○
229	Dibutyl Phthalate	○	-	-	○	○	-	○	-	-	○	-	□	○
230	Dibutyl Sebecate (DBS)		①	-	○		-	-	-	-	□	-	□	○
231	Dichloro Isopropyl Ether		-				-	-	-	-	-	□	-	○
232	Dichlorobenzene		-	②	①	-	-	-	-	-	-	-	-	○
233	Dichlorobutane				□	-	-	-	-	-	-	-	○	○
234	Dichloroethane	①	-	○	□	①	-	-	-	-	-	-	-	⊕
235	Diesel Fuel	○	-	○	○	○	○	-	○	-	-	-	○	○
236	Diethanol Amine	○	○		○		□		□	○		□		○
237	Diethyl Carbonate						-	-	-	-	-	-	-	○
238	Diethyl Ether	-	-	①	○	□	□	□	□	-	□	□	-	○
239	Diethyl Phthalate (DEP)				○	○	-	-	-	-	○	-	□	○
240	Diethyl Sebecate		②	②	○	○	-	-	-	-	□	-	□	○
241	Diethylamine	○	○	①	○	○	-	-	-	-	-	-	-	○
242	Diethylbenzene						-	-	-	-	-	-	○	○
243	Diethylene Ether (Dioxane)	□	-	①	○	□	-	○	-	-	-	-	-	○
244	Diethylene Glycol	①	-	○	○	□	○	○	○	○	○	-	○	○
245	Diethylene Triamine				○	○	□		□					○
246	Diisobutyl Ketone				○	○	-	□	-	-	-	-	-	○
247	Diisobutylene	○	○	○	□	□	□		□	-	-	-	○	○
248	Diisodecyl Adipate (DIDA)						-	-	-	-	-	-	-	○
249	Diisodecyl Phthalate (DIDP)						-	○	-	-	-	-	-	○
250	Diisooctyl Adipate (DIOA)				○	○	-	-	-	-	-	-	-	○
251	Diisooctyl Phthalate (DIOP)						-	-	-	-	-	-	-	○
252	Diisooctyl Sebecate (DIOS)						-	□	-	-	-	-	○	○
253	Diisopropyl Ketone			-	○		-	-	-	-	-	-	-	○
254	Dimethyl Aniline	○	-	○	②	②	-	②	-	-	□	-	-	○
255	Dimethyl Ether				□	□	○		○	□			○	○
256	Dimethyl Formamide (DMF)	○	②	-	○	○	-	□	-	-	○	-	-	○
257	Dimethyl Phthalate	-	①	①	□		-	○	-	-	○	-	-	○
258	Dimethyl Sulfate			①			-	-	-	-	-	-	-	○
259	Dimethyl Sulfide				○	○	-	-	-	-	-	-	-	○
260	Dinitrotoluene (DNT)				□		-	-	-	-	□	-	□	○
261	Dioctyl Phthalate (DOP)	○		①	○	○	-	□	-	-	-	-	□	○
262	Dioctyl Sebecate				○	○	-	-	-	-	-	-	□	○
263	Dioxane (See Diethylene Ether)													
264	Dipentene (Limonene)				○	○	-	-	-	-	-	-	○	○
265	Diphenyl			②	□	□	-	-	-	-	-	-	○	○
266	Diphenyl Oxide			□	○	□	-	-	-	-	-	-	○	○
267	Dipropylene Glycol		○	○			○		○				○	○
268	Dyes	○			○	□			-	-	□		○	○
269	Epichlorohydrin	○	①	-	○	-	-	□	-	-	□	-	-	○
270	Epsom Salts (Magnesium Sulfate)	①	○	○	○	○	○	○	○	○	○	○	○	○
271	Ethane	-	-	-	①	○	○	-	○	□	-	□	○	○
272	Ethanolamine	○	-	-	○	□	□	□	○	□	○	-	-	○
273	Ether	○	-	①	○	○	-	-	-	-	-	-	-	○
274	Ethylene Oxide	①	-	○	○	○	-	-	-	-	○	-	-	○
275	Ethylene Trichloride (Trichloroethene)	①	-	○	○	-	-	-	-	-	-	-	○	○
276	Ethyl Acetate	②	①	-	○	○	-	□	-	-	○	-	-	○
277	Ethyl Acetoacetate (Acetoacetic Ester)		○	①	○	○	-	-	-	-	-	-	-	○
278	Ethyl Acrylate		-	①	○	○	-	-	-	-	-	-	-	○
279	Ethyl Benzene	-	-	②	□	□	-	-	-	-	-	-	○	○
280	Ethyl Benzoate	-	□	-	○	○	-	-	-	-	-	-	○	○

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<h1>Chemical Resistance Table</h1> <h2>Lutz Double Diaphragm Pumps</h2> <h3>Ethyl Bromide – Hydraulic Oil</h3>		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
No.	Medium													
281	Ethyl Bromide (Bromoethane)				○	○	-	□	-	□				○
282	Ethyl Butyrate	○	□		○	□	-	-	-	-			-	○
283	Ethyl Cellulose (Ethocel®)	□	-		□	□	□	□	□	○	□	○	○	○
284	Ethyl Chloride	□	-	○	○	-	○	-	□	-	□	-	○	○
285	Ethyl Ether	①	-	②	○	-	-	-	-	-	-	-	-	○
286	Ethyl Formate			①	□	□	-	-	-	□	□		○	○
287	Ethyl Mercaptan (Ethanethiol)				□	□	-	-	-	-	-		□	○
288	Ethyl Propionate				○	○	-	-	-	-				○
289	Ethyl Silicate				○	□	○	○	○	○	□		○	○
290	Ethyl Sulfate	○			-		○		○		□		○	○
291	Ethylalcohol (Liquor)	□	○	○	○	□	○	□	○	○	○	-	○	○
292	Ethylene (Ethene)				○	○	□	-	□	○	-		○	○
293	Ethylene Chloride	①	-	○	○	□	-	-	-	-	-	-	○	○
294	Ethylene Chlorohydrin		-	①	○	-	-	○	-	□	-	-	□	○
295	Ethylene Diamine	□	○	□	○	-	□	○	□	○	○	-	-	○
296	Ethylene Dibromide (Ethylene Bromide)		-	○	□	-	-	-	-	-			□	○
297	Ethylene Dichloride	□	-	○	□	-	-	-	□	-	-	-	○	○
298	Ethylene Glycol Monobutyl Ether (Butyl Cellosolve)				○	○	□	□	□	-	□	-	-	○
299	Ethylene Glycol Monoethyl Ether Acetate				○	○	-	□	-	-	-	-	-	○
300	Ethylidene Chloride				○	-	-	-	-	-				○
301	Fatty Acids	①	□	○	○	□	□	-	□	-	□		○	○
302	Ferric Chloride	-	○	○	-	-	○	○	○	□	○	○	○	○
303	Ferric Hydroxide				○		□						-	○
304	Ferric Nitrate	-	○	○	□	-	○	○	○	○	○	○	○	○
305	Ferric Sulfate	-	○	○	□	-	○	○	○	○	○	○	○	○
306	Ferrous Chloride	-	○	○	-	-	○	○	○	○	○	□	○	○
307	Ferrous Sulfate	-	○	○	□	-	②	○	○	○	○	□	○	○
308	Fluoboric Acid	-	○	○	□	-	□	②	○	□	○		-	○
309	Fluorine	-	-	①	○	-	-	□	-	-	-	-	□	○
310	Fluorobenzene	-	-	-			-	-	-	-	-	-	○	○
311	Fluorolube (Fluorocarbon Oils)			-	○	○	-	-	-	○	-		□	○
312	Fluosilicic Acid	-	○	○	□	-	□	□	○	○	○	□	○	○
313	Formaldehyde (Formalin)	-	○	-	○	○	□	○	□	-	○	-	○	○
314	Formic Acid	-	①	○	①	-	-	□	-	□	○	-	-	○
315	Fruit Juice	-	○	○	○	○	○	○	○	-	○	-	○	○
316	Furan (Furfuran)		-	-		-	-	-	-	-	-	-	-	○
317	Furfural (Ant Oil)	□	-	①	○	○	-	-	-	□	-	-	-	○
318	Furfurylalcohol			①	○	○	-	□	-		□	-	-	○
319	Gallic Acid	①	○	①	□	○20%	□	□	□	□	□	-	○	○
320	Gasoline (Unleaded)	○	-	○	○	○	-	-	-	-	-	-	○	○
321	Gasoline, (Leaded)	○	-	○	○	○	○	-	-	-	-	-	○	○
322	Gelatin	①	○	○	○	○	○	○	○	○	○	○	○	○
323	Glucose (Corn Syrup)	①	○	○	○	○	○	○	○	○	○	○	○	○
324	Glue, P.V.A. (Water Base)	①	○	○	②	□	○	○	○	○	○	○	○	○
325	Glycerin (Glycerol)	①	○	○	○	○	○	○	○	○	○	○	○	○
326	Glycolic Acid		○	①			○	○	○	○	○	□	○	○
327	Gold Monocyanide			○	-		○	○	○	○			○	-
328	Grape Juice	○	○	○	○	○	○	○	○	-			○	○
329	Grease (Petroleum Base)	○		○	○	○	○	□	○	-	□	○	○	○
330	Heptanal		○		○	○	○		○				○	○
331	Heptane	○	-	○	○	○	○	-	○	-	-	○	○	○
332	Hexanal				○	○	-	□	-	○		□	-	○
333	Hexane	□	-	○	○	○	○	-	○	□		○	○	○
334	Hexylalcohol (Hexanol)	○	①	○	○	○	○		○	□	□		□	○
335	Honey	○	○	○	○	○	○	○	○	○	○	□	○	○
336	Hydraulic Oil (Petroleum Base)	①	-	○	○	○	○	-	○	□	-	-	○	○

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C
 * Do not use glass filled polypropylene pumps (DMP 1", 1 1/2", 2" clamped version)

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Hydraulic Oil – Lye

No. Medium		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
337	Hydraulic Oil (Synthetic)	①	-	○	○	○	-	-	-	-	□	-	○	○
338	Hydrazine (Diamine)	-	-	○	○	-	□	○	□	-	-	○	○	○
339	Hydrobromic Acid	-	②	○50%	-	-	-	○	-	-	□	○	○	○
340	Hydrochloric Acid 20%	-	○	○	-	-	□	○	□	-	○	-	○	○
341	Hydrochloric Acid 37%	-	□	○	-	-	-	□	-	-	○	-	○	○
342	Hydrocyanic Acid (Formonitrile)	-	○	○	○	○10%	□	○	□	-	①	-	○	○
343	Hydrofluoric Acid 100%*	-	-	○	-	-	-	-	-	-	-	-	□	○
344	Hydrofluoric Acid 20%*	-	○	○	-	-	-	-	-	-	○	-	○	○
345	Hydrofluoric Acid 50%*	-	②	○	-	-	-	-	-	-	○	-	○	○
346	Hydrofluoric Acid 75%*	-	①	○	-	-	-	-	-	-	○	-	○	○
347	Hydrofluosilicic Acid 100%*	-	-	①	-	-	□	○	□	□	-	-	○	○
348	Hydrofluosilicic Acid 20%*	-	-	○	①	-	□	○	□	□	-	-	○	○
349	Hydrogen Gas	-	○	○	○	○	○	○	○	○	○	○	○	○
350	Hydrogen Peroxide 100%	-	①	①	○	○	-	-	-	-	-	-	○	○
351	Hydrogen Peroxide 30%	-	○	○	○	○	-	□	-	-	-	-	○	○
352	Hydrogen Peroxide 50%	-	①	①	○	○	-	□	-	-	-	-	○	○
353	Hydrogen Sulfide (aqua)	-	○	○	○	-	-	○	-	-	○	-	-	○
354	Hydroquinone	-	○	○	□	○	-	-	-	-	○	-	-	○
355	Hydroxyacetic Acid 70%	-	○	○	-	-	-	-	○	-	○	-	-	○
356	Hypochlorous Acid	-	○	○	-	-	-	□	-	-	○	-	○	○
357	Iodine (in alcohol)	-	①	②	-	-	□	□	□	-	○	-	○	○
358	Iodoform	-	-	○	□	□	-	○	-	-	□	-	-	○
359	Isoamyl Acetate	-	-	-	○	○	-	□	-	-	-	-	-	○
360	Isoamyl Butyrate	-	-	-	○	○	-	-	-	-	-	-	-	○
361	Isobutyl Acetate	-	-	-	○	○	-	-	-	-	-	-	-	○
362	Isobutyl Chloride	-	-	-	□	-	-	-	-	-	-	-	□	○
363	Isobutylalcohol	①	-	○	○	□	-	○	□	○	○	-	○	②
364	Isobutyric Acid	-	-	-	-	○	-	○	-	-	-	-	-	○
365	Isododecane	-	-	-	□	□	□	-	□	-	-	□	○	○
366	Isooctane (Trimethylpentane)	①	○	○	○	○	○	-	○	-	-	-	○	○
367	Isophorone	-	-	②	○	○	-	-	-	-	-	□	-	○
368	Isopropyl Acetate	①	□	-	○	-	-	□	-	-	-	○	-	○
369	Isopropyl Amine	-	-	-	○	-	-	-	-	-	-	-	-	○
370	Isopropyl Chloride	-	-	①	○	-	-	-	-	-	-	-	□	○
371	Isopropyl Ether	①	①	②	○	○	□	-	□	-	-	□	-	○
372	Isopropylalcohol	①	②	○60°C	○	□	□	○	○	□	□	-	○	②
373	Isotane	-	-	○	○	○	○	○	○	-	-	-	○	○
374	Jet Fuel (JP1 TO JP6)	①	-	○	○	○	○	-	○	-	-	-	○	○
375	Kerosene	①	①	○	○	○	○	-	○	-	-	-	○	○
376	Ketones	②	-	-	○	□	-	-	-	-	-	○	-	○
377	Lacquer Thinners	①	-	-	○	○	-	-	-	-	-	-	-	○
378	Lacquers	①	-	-	○	○	-	-	-	-	-	-	-	○
379	Lactic Acid	-	○	②	○	-	□	○	□	□	○	□	○	○
380	Lard	①	○	○	○	○	○	-	○	-	□	○	○	○
381	Latex	①	○	-	○	○	○	○	○	□	○	○	○	○
382	Lead Acetate	□	○	○	□	□	-	□	○	○	○	□	-	○
383	Lead Chloride	-	-	-	□	-	-	-	-	□	-	-	-	○
384	Lead Nitrate	-	○	-	□	-	□	○	□	○	-	-	○	○
385	Lead Sulfamate	①	○	○	-	-	□	○	□	○	○	-	○	○
386	Ligroin	-	-	○	○	-	○	-	○	□	□	□	○	○
387	Lime, Soda (Slaked Lime & Soda Ash)	①	○	○	○	-	①	○	①	□	○	-	○	○
388	Linoleic Acid	-	①	○	○	○	□	-	□	-	□	-	□	○
389	Lithium Chloride	-	②	②	②	-	②	①	②	①	○	-	①	○
390	Lithium Hydroxide	-	-	-	□	-	-	-	-	-	-	-	-	○
391	Lubricants (Petroleum)	○	□	○	○	○	○	-	○	□	-	□	○	○
392	Lye: KOH Potassium Hydroxide	①	○	○66°C	○	-	-	②	-	□	○	-	□	○

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<h1>Chemical Resistance Table</h1> <h2>Lutz Double Diaphragm Pumps</h2> <h3>Magnesium Bisulfate – Nickel Chloride</h3>		Plastics			Metals		Elastomers						
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®
No.	Medium												
393	Magnesium Bisulfate	①	②		①	-	□		□	□			○
394	Magnesium Carbonate	-	○	○	□	□	○	○	○	○		○	○
395	Magnesium Chloride	①	○	○	①	②	○	○	○	○	○	○	○
396	Magnesium Hydroxide (Milk of Magnesia)	①	○	○	○	-	□	○	□	□	○	○	○
397	Magnesium Nitrate	①	○	○	○	-	○	○	○	○	○	-	○
398	Magnesium Oxide				○	□	○		○	○	○	-	○
399	Maleic Acid	-	○	○	□	-	-	-	-	-	○	-	○
400	Maleic Anhydride			①	○	-	-	-	-	-	○		○
401	Malic Acid (Apple Acid)	-	□	○	○	□	□	-	□	-	○		○
402	Manganese Sulfate	②	□	○	②	①	②	②	②	②		②	○
403	Maple Sugar Liquors				○		○	○	○	○		○	○
404	Mash	○			○	○	○	○	○	○		○	
405	Mayonnaise	○	○	○	○	-	○		○	○	○	-	○
406	Melamine	○	○		-	-	○	-	-	○		○	○
407	Mercuric Chloride	-	○	○	-	-	○	①	○	○	○		○
408	Mercuric Cyanide	②	○	○	□	-	○	①	○	□	○		○
409	Mercurous Nitrate		○	○	□	-	①	①	①	①	①		○
410	Mercury	○	○	○	○	-	○	○	○	○	○	○	○
411	Mesityl Oxide				○	○	-	-	-	-	-	-	○
412	Methane	②	□	○	○	○	○	-	○	□	-	□	○
413	Methyl Acetate	②	-	□	○	○	-	□	-	□	□	-	○
414	Methyl Acetone	○	-	-	○	○	-	□	-	-	□	-	○
415	Methyl Acrylate			①	-	-	-	-	□	□		-	○
416	Methyl Amine (Monomethylamine)	○	-	-	○	□	□	○	□	○		○90%	○
417	Methyl Amyl Acetate				○	○	○		○			-	○
418	Methyl Bromide	-	-	○	○	-	-	-	①	-	-		○
419	Methyl Butyl Ketone	-	-	-	○	○	-	□	-	-	-	-	○
420	Methyl Butyrate				○	○	-	-	-	-			○
421	Methyl Cellosolve	-	□	○		○	-	②	-	-	□	-	○
422	Methyl Chloride	-	-	○	○	-	-	-	-	-	-	○	○
423	Methyl Dichloride	-	-	-		-	-	-	-	-	-	○	
424	Methyl Ethyl Ketone (MEK)	①	-	-	○	○	-	②	-	-	○	-	○
425	Methyl Formate				○	○	-	-	-	□	□	-	○
426	Methyl Iodide				○	○	-	○	-	-	○		○
427	Methyl Isobutyl Ketone (MIBK)	①	①	-	○	□	-	-	-	-	-	-	○
428	Methyl Isopropyl Ketone	-	-		○	○	-	-	-	-	-	-	○
429	Methyl Methacrylate	-	○	②	-	-	-	-	-	-	□	-	○
430	Methyl Salicylate (Betula Oil)		□	○66°C		○	-	-	-	-	□		○
431	Methylalcohol	①	②	○	○	□	○	○	○	○	○	-	○
432	Methylene Bromide				○	-	-	-	-	-	-	□	○
433	Methylene Chloride	-	-	②	○	-	-	-	-	-	-	□	○
434	Milk	○	○	○	○	○	○	○	○	○	○	-	○
435	Mineral Spirits	○	□		○	○	○	-	○	-	-	○	○
436	Molasses	○	○	○	○	○	○	○	○	○	○	-	○
437	Monoethanolamine	○	-	-	○	□	□	□	□	-	○	-	○
438	Morpholine	②	②	②	①	①	-	-	-	-	-	-	②
439	Motor oil (Petroleum Base)	○	①	□	○	○	○	-	○	①	-	○	○
440	Motor oil (Synthetic Base)	○	□	□	○	○	-					○	○
441	Mustard	-	○	○	○	□	-		□	○	○		○
442	Naphtha (Petroleum spirits-thinner)	○	-	○	○	○	○	-	○	-	-	-	○
443	Naphthalene (Tar Camphor)	○	○	○	○	□	-	-	-	-	-	□	○
444	Naphthoic Acid				○	□	□	-	□	-	-	-	○
445	Natural Gas		○		○	○	○	-	○	○	-	□	○
446	n-Butyl Acetate				○	○	-	-	-	-	○	-	○
447	Nickel Acetate				○	□10%	□	○	□	□	○	-	○
448	Nickel Chloride	-	○	○	□	-	○	○	○	○	○	○	○

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Nickel Nitrate – Oils

No.	Medium	Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
449	Nickel Nitrate	○	○	○	○	-	○	○	○	○	○		○	○
450	Nickel Sulfate	①	○	○	○	-	○	○	○	○	○	○	○	○
451	Nitric Acid (10%)	-	○	○	○	○	-	□	-	□	○	-	○	○
452	Nitric Acid (20%)	-	○	②	○	-	-	□	-	-	○	-	○	○
453	Nitric Acid (30%)	-	□	②	○	-	-	-	-	-	□	-	○	○
454	Nitric Acid (50%)	-	□	②	○	-	-	-	-	-	-	-	○	○
455	Nitric Acid (70%)	-	-		○	-	-	-	-	-	-	-	○	○
456	Nitric Acid (Concentrated)	-	-	①	○	-	-	-	-	-	-	-	○	○
457	Nitric Acid (Red Fuming)	-	-	-	○	-	-	-	-	-	-	-	□	○
458	Nitrobenzene	①	①	①	□	-	-	□	-	-	□	-	□	○
459	Nitroethane			-	○	○	-	-	-	-	○	-	-	○
460	Nitrogen Tetroxide		-	-	○	○	-	-	-	-	-	-	-	○
461	Nitromethane	①	-	②	○	○	-	-	-	-	○	-	-	○
462	Nitrous Acid		○	□	□	-		○		-	○		□	○
463	Nitrous Oxide	-	-	-	□	□		○		○	○		□	○
464	n-Octane	○	-	○			○	-	○		□		○	○
465	n-Propyl Acetate		-	○	○	○	-	○	-	-	○		-	○
466	n-Propyl Nitrate (NPN)					○	○	□	○		□		-	○
467	Octylalcohol	○			○	○	□	□	□	□	□	-	○	○
468	Oils: Aniline	-	①	○38°C	○	□	-	□	-	-	□	-	-	○
469	Oils: Anise				○					-	-	-	○	○
470	Oils: Bay			○	○					-	-	-	○	○
471	Oils: Bone		○	○	○		○		○	-	-	-	○	○
472	Oils: Castor			○	○	○	○	□	○	○	□	○	○	○
473	Oils: Cinnamon				○					-	-			○
474	Oils: Citric		○	○	○	○	-	-	-	-	-		○	○
475	Oils: Clove		□		○				○	-	-		○	○
476	Oils: Coconut		○	○	○	□	□	○	○	□	□	○	○	○
477	Oils: Cod Liver				○	○	□	○	○	□	-	○	○	○
478	Oils: Corn		○	○	○	□	○	-	○	-	□	○	○	○
479	Oils: Cottonseed	○	○	○	○	○	○	○	□	-	□	○	○	○
480	Oils: Diesel Fuel (20, 30, 40, 50)	○	①	○	○	○	□	-	□	-	-	-	○	○
481	Oils: Fish				○	○	○		□		□		○	○
482	Oils: Fuel (1, 2, 3, 5A, 5B, 6)	①	①	○	○	○	-	-	-	-	-	□	○	○
483	Oils: Ginger			○	○	○	○	○	○	○	-	-	○	○
484	Oils: Lavender				○		□	-	□	-	□		□	○
485	Oils: Lemon			○	○	○				-	-		○	○
486	Oils: Linseed	①	○	○	○	○	○	-	○	○	□	□	○	○
487	Oils: Mineral	○	□	○	○	○	○	-	○	□	-	○	○	○
488	Oils: Neatsfoot				○		○	-	□				○	○
489	Oils: Olive	○	○	○	○	○	○	-	○	-	□	○	○	○
490	Oils: Orange		○	○	○	○	○	○	○	-	-	-	○	○
491	Oils: Palm			○	○	○	○	○	○	-	□		○	○
492	Oils: Peanut			○	○	○	○	-	○	□	□	□	○	○
493	Oils: Peppermint			○	○	-	-	-	-	-	-		○	○
494	Oils: Petroleum (Crude Oil)	○	□	○	○	○	○	-	○	-	-	-	○	○
495	Oils: Pine	○		○	○	○	□	-	□	-	-	○	○	○
496	Oils: Rapeseed			○	○		□	○	○	-	□	□	○	○
497	Oils: Rosin	①	○	○	○	○	○	○	○		○		○	○
498	Oils: Sesame Seed			○	○	○	○		○	-	□		○	○
499	Oils: Silicone	①	○	○	○	○	○	-	○	-	-	○	○	○
500	Oils: Soybean	①	○	○	○	○	○	-	○	-	□	□	○	○
501	Oils: Sperm (whale)			○	○		○		○	-	□		○	○
502	Oils: Tall (Liquid Rosin)		○	○	□	-	○	-	○	□	○		○	○
503	Oils: Tanning			○	○		○		○	-	□		○	○
504	Oils: Transformer	①	□	○	○	○	□	-	□	-	-	-	○	○

The information in this chart has been supplied by reputable sources and is to be used ONLY as a guide in selecting equipment for appropriate compatibility. This does not warrant that the information in this chart is accurate or complete or that any material is suitable for any purpose.

Chemical Resistance Table Lutz Double Diaphragm Pumps Oils – Potassium Oxalate		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
No.	Medium													
505	Oils: Tung (Wood Oil)				○	○	○	-	○	-	□	-	○	○
506	Oils: Turbine	○	①	○	○	○	□	-	□	-	-	-	○	○
507	Oils: Vegetable	②	②	○	○	○	○	□	□	-	○	○	○	○
508	Oleic Acid	②	□	○	○	□	-	-	□	-	□	□	□	○
509	Oleum 100% (Fuming Sulfuric)		-	-	○	-	-	-	-	-	-	-	○	○
510	Oxalic Acid (cold)	②	□	②	○	-	-	○	-	□	○	○5%	○	○
511	Ozone	-	-	○	○	□	-	○	-	□	○	○	○	○
512	Palmitic Acid	-	○	○	○	-	②	①	②	-	□	○	○	○
513	Paraffin	①	○	○	○	○	○	○	○	○	○	○	□	○
514	Paraformaldehyde				○	○10%	□		□	□			-	○
515	Pentachloroethane (Pentalin)				○	-	-	-	-	-	-	-	○	○
516	Pentachlorophenol (PCP)				○	○	-	-	-	-	-	-	○	○
517	Pentane	○		○	-	○	○	-	○	-	○	-	○	○
518	Perchloric Acid	-	-	○	-	-	-	-	-	○	-	-	○	○
519	Perchloroethylene (Tetrachlorethylene)	-	-	○	○	-	-	-	-	-	-	-	○	○
520	Petrolatum	-	-	○	○	□	○	□	○	□	□	-	○	○
521	Phenyl Hydrazine		-	②		○	-	-	-	-	□	-	○	○
522	Phenyl Sulfonic Acid				□	□	-	-	-	-	-	-	-	○
523	Phosphoric Acid (crude) (100%)	-	②	○	□	-	-	-	-	-	-	○	○	○
524	Phosphoric Acid (molten)		○	○	○	-	-	○	-	○	○	-	○	○
525	Phosphoric Acid Anhydride		○	-	-	-	-	-	○	-	-	-	-	-
526	Phosphorus		○	①	②	□	-	-	-	-	-	-	-	②
527	Phosphorus Trichloride		-	○	○	-	-	①	-	-	○	-	○	○
528	Photographic Developer	-	○	○	○	-	○	-	○	○	○	-	○	○
529	Phthalic Acid	①	○	○	○	②	-	①	-	○	○1	-	①	②
530	Phthalic Anhydride		-	○	○	○	-	○	-	○	○	-	○	○
531	Pickling Solution (17% nitric acid, 4% HF)							-	-	-	○	-	□	○
532	Pickling Solution (20% nitric acid, 4% HF)							-	-	-	○	-	□	○
533	Picric Acid (Carbozoatic Acid)	-	①	①	-	-	□	□	□	□	□	□	○	○
	Plating Solutions													
534	Cadmium	○	○	○			○				○	○	○	○
535	Chrome	-	○	○	○						-	○	○	○
536	Gold	①	○	○	○		○				○		○	○
537	Iron		○	○	○		○				○		○	○
538	Lead		○	○			○				○		○	○
539	Nickel	○	○	○			○				○		○	○
540	Silver	②	○	○	○		○				○		○	○
541	Tin		○	○	○		○				○		○	○
542	Zinc		○	○	○		○				○		○	○
543	Potash (Potassium Carbonate)	○	○	○	□	-	○	①	○	○	○	-	○	○
544	Potassium Acetate		○	○	□	-	□	○	○	□	○	-	-	○
545	Potassium Bicarbonate	①	○	○	□	-	○	○	○	○	○	-	○	○
546	Potassium Bisulfate		○	○	○10%	○10%	○		○	○			○	○
547	Potassium Bisulfite				□10%	□10%	○		○	○			○	○
548	Potassium Bromide	①	○	○	□90%	-	○	○	○	○	○		○	○
549	Potassium Chlorate	-	○	○	□	-	○	○	○	○	○		○	○
550	Potassium Chloride	□	○	○	-	-	○	○	○	○	○	○	○	○
551	Potassium Chromate	○	○	○	□	○	○	②	○	○	○		○	○
552	Potassium Cyanide Solutions	①	○	○	□	-	○	①	○	○	○	○	○	○
553	Potassium Dichromate	-	○	○	○	○	○	①	○	○	○	○	○	○
554	Potassium Ferricyanide	①	②	○	①	②	-	○	-	①	○		○	○
555	Potassium Ferrocyanide	①	○	○	□	①	-	○	-	○	○		○	○
556	Potassium Hypochlorite	①		○	□	-	①	①	①	②	○		○	○
557	Potassium Iodide		○	○	①	①	①	○	①	○	○		○	○
558	Potassium Nitrate	①	○	○	□	□	○	○	○	○	○	○	○	○
559	Potassium Oxalate				①	①								②

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Potassium Permanganate – Sodium Sulfate

No. Medium		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
560	Potassium Permanganate	-	□	○	□	1	-	○	-	-	○		○	○
561	Potassium Sulfate	①	○	○	○	□	○	①	○	○	○	○	②	○
562	Potassium Sulfide	○	○	○	□	-	○	○	○	○	○	○	○	○
563	Propane (liquefied) (LPG)	①	-	○	○	○	○	-	○	□	-	-	○	○
564	Propylalcohol	□	○	②	○	○	○	○	○	○	○	-	○	○
565	Propylene				○	○	-	-	-	-	□		○	○
566	Pyridine	-	-	-	□	○	-	-	-	-	-	-	-	○
567	Pyrogalllic Acid		○	○	□	□		□		○	○		○	○
568	Pyroligneous Acid (Wood Vinegar)	-	○	○	○ 10%	□	-	-	-	-	□		○	○
569	Resorcinol	-	②					1		-	□		①	②
570	Rosins	①	②		○	○	○		○		○			○
571	Rubber Latex Emulsions				○	○			○				○	○
572	Rum	○	○		○		○	○	○	○	○	-	○	○
573	Rust Inhibitors		○		○		○		○	-	□		○	
574	Salad Dressings	○	○	○	○	□	○	○	○		○		○	
575	Salicylic Acid	○	○	○	□	○	□	○	□	□	○		○	○
576	Sea Water	○	□	○	○	□	○	②	○	□	○	○	○	○
577	Shellac (Bleached or Orange)	①	○		○	○	②	②	②		□		○	○
578	Silicone	①	○	○	○	□	○	□	○	○	□		○	○
579	Silicone Grease						○		○	○	□	○	○	○
580	Silver Bromide				□	-					○			○
581	Silver Cyanide		○	○	○	-				○				○
582	Silver Nitrate	①	○	○	○	-	□	○	□	○	○	○	○	○
583	SKYDROL 500	-			○		-	○	-	-	□	-	-	○
584	Skydrol Hydraulic Fluid® (Phosphate Ester)	-			○		-	○	-	-	□	-	-	○
585	Soap Solutions	○	○	○	○	-	○	○	○	□	○	○	○	○
586	Sodium Acetate	1	○	○	○	○	□	○	○	□	○	□	-	○
587	Sodium Aluminate	①	○	○	○		○	○	○	○	○		○	○
588	Sodium Benzoate	1	②	②		①	□	○	□	①	○		①	②
589	Sodium Bicarbonate	○	○	○	○	□	○	②	○	○	○	□	○	○
590	Sodium Bisulfate	□	○	○	□	□	○	②	○	○	○	□	○	○
591	Sodium Bisulfite	-	○	○	□	□	②	②	②	○	○		○	○
592	Sodium Borate (See Borax)													
593	Sodium Bromide	○	○	○	□	-		○			○			○
594	Sodium Carbonate (Soda Ash)	1	○	○	○	-	○	②	○	○	○	□	○	○
595	Sodium Chlorate	-	○	○	□	□	○	○	○	□	○	□	○	○
596	Sodium Chloride	①	○	○	○	□	○	○	○	○	○	○	○	○
597	Sodium Chromate	-	○	○	○ 50%	-	○		○	○	○		○	○
598	Sodium Cyanide	①	○	○	○	-	○	②	○	○	○	□	○	○
599	Sodium Dichromate	-	○	○				○		□	○	□	○	○
600	Sodium Ferrocyanide		○	○	□	○	○	○	○	○	○	□	○	○
601	Sodium Fluoride	○	○	○	-	□ 30%	○	○	○	○	○	□	○	○
602	Sodium Hydrosulfite	○				○	-	□	-	□	□	□	○	○
603	Sodium Hydroxide (< 10%) (Caustic Soda)	□	○	○ 66°C	○	-	□	○	○	②	○	□	○	○
604	Sodium Hydroxide (< 50%) (Caustic Soda)	-	○	○ 49°C	□	-	-	□	-	-	○	-	○	○
605	Sodium Hypochlorite	-	-	○	-	-	□	□	□	-	○	-	○	○
606	Sodium Hyposulfate				○	-				-			○	○
607	Sodium Metaphosphate	①	-		○	-	○	○	○	□	○	□	○	○
608	Sodium Metasilicate		○	○	○	□	○	○	○	○	○		○	○
609	Sodium Nitrate		○	○	○	○	-	○	-	□	○	□	○	○
610	Sodium Perborate	1	○	○	○	-	□	○	□	□	○		○	○
611	Sodium Peroxide	①	□	○	□	-	□	□	□	□	□	-	○	○
612	Sodium Phosphate (Tribasic) (TSP)	①	○	○	□	-	□	○	□	□	○	○	○	○
613	Sodium Polyphosphate	①	○	○	□	-	○	○	○	-	○	○	○	○
614	Sodium Silicate	①	○	○	○	-	○	○	○	○	○	□	○	○
615	Sodium Sulfate	○	○	○	○	□	○	○	○	○	○	○	○	○

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Chemical Resistance Table Lutz Double Diaphragm Pumps Sodium Sulfide – Uric Acid		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
No.	Medium													
616	Sodium Sulfide	①	○	○	○	-	○	②	○	○	○	○	○	○
617	Sodium Sulfite	□	○	○	○ 30%	○ 30%	○	○	○	○	○	○	②	○
618	Sodium Tetraborate	○	-		○	-	○		○		○		○	○
619	Sodium Thiosulfate (hypo) (Antichlor)	□	○	○	○	□	□	○	○	○	○	○	○	○
620	Sorghum	○			○		○		○	○	○		○	
621	Stannic Chloride (Tin Chloride)	□	○	○	-	-	○	□	○	-	○	□	○	○
622	Stannic Fluoborate				○		○		○	○	○		○	
623	Stannous Chloride	□	○	○	□	-	○	□	○	①	□	□	○	○
624	Starch	○	○		○	○	○	□	○	○	○	○	○	○
625	Stearic Acid	○	□	○	○	-	○	□	□	□	○	○	○	○
626	Stoddard Solvent	○	②	○	○	○	□	-	□	-	-	□	-	○
627	Styrene (Vinyl Benzene)	○	-	-	○	○	-	-	-	-	-	□	□	○
628	Sulfuric Acid (98%) (66° Baume')	-	-	○ 66°C	-	-	-	-	-	-	○	-	○	○
629	Sugar (Liquids) (Sucrose Solutions)	①	○		○	○	○	○	○	○	○	-	○	○
630	Sulfate (Liquors)	①	○	○	-	□		○			○		①	○
631	Sulfur Chloride	①	-	①	-	-	-	-	-	-	-	-	○	○
632	Sulfur Dioxide	-	-	○	○	-	-	□	-		○	□	○	○
633	Sulfur Hexafluoride						□	○	□	○	□	□	○	○
634	Sulfur Trioxide	○	-	-	□	-	-	-	-	-	-	-	○	○
635	Sulfuric Acid (<10%)	-	②	○	-	-	-	○	□	②	○	-	○	○
636	Sulfuric Acid (10-75%)	-	①	②	-	-	-	②	-	-	○	-	○	○
637	Sulfurous Acid	-	○	○	□	-	-	-	○	-	○	-	○	○
638	Sulfuryl Chloride	-	-	○	□	□	-	○		-	○		○	○
639	Tallow	①	□	○	○	○	○	□	□		□	○	○	○
640	Tannic Acid	-	○	○	○	-	-	-	-	□	○	○	○	○
641	Tanning Liquors	①	○		○	-	①	□	①	□	○		○	○
642	Tartaric Acid	①	○	○	○	-	○	□	○	②	○	○	○	○
643	Terpineol (Terpilenol)		-	②	○	○	-	-	-	-	□	□	○	○
644	Tetrahydronaphthalene (Tetralin)	○	-		○	○	-	-		-	-	-	○	○
645	Tetra Bromomethane		-		-	-	-	-	-	-	-	-	○	○
646	Tetrachloroethane	-	-	○	○	-	-	-	-	-	-	-	○	○
647	Tetrachloroethylene	①	-	○	○	-	-	-	-	-	-	-	○	○
648	Tetrahydrofuran (THF)	○	-	①	○		-	-	-	-	□	-	-	○
649	Thionyl Chloride	-	-	-	○	-	-	-	-	-	□	□	○	○
650	Tin Salts		○	○	-	-	○	□	○		□	□	○	○
651	Titanium Tetrachloride	○	□	○ 66°C	□	-	-	-	-	-	-	-	○	○
652	Toluene (Toluol)	①	-	○	○	○	-	-	-	-	-	-	-	○
653	Toluene Diisocyanate							□	□	-				○
654	Toluidine				○	○	-	-					□	○
655	Tomato Juice	○	○	○	○	□	○	○	○		○		○	○
656	Transmission Fluid, automatic (Type ○)				○	○	○	-	○	-	-	○	○	○
657	Triacetin					□	○	○	○	□	○	-	-	○
658	Tributyl Phosphate (TBP)		①	①	○	○	-	-	-	-	□	-	-	○
659	Trichloroacetic Acid (TCA)	-	□	①	-	-	-	-	-	□	□	-	□	○
660	Trichlorobenzenes	-	□	-	○	-	-	-	-	-	-	-	□	○
661	Trichloroethane	-	-	○	○	-	-	-	-	-	-	-	□	○
662	Trichloroethylene	-	-	○	○	-	-	-	-	-	-	-	-	○
663	Trichloropropane	-	-	○	○	-	-	-	-	○	-	-	□	○
664	Tricresylphosphate	②	□	-	□	-	-	○	-	-	□	-	□	○
665	Triethanol Amine (TEA)	①	①	①	○	□	-	□	-	□	○	□	-	○
666	Triethylamine		-	②	○		-	○	○	□	○			○
667	Trimethylene Glycol				○	○	○	○	○		○		○	○
668	Trisodium Phosphate	○	○	○	□	-	○	○	○	○	○	□	○	○
669	Turpentine	□	-	○	○	○	○	-	○	-	-	-	○	○
670	Urea	○	○	○	-	□	□		□	□		□	○	○
671	Uric Acid	○			□	-				○			○	○

Meaning of symbols: ○ = Resistant ① = resistant up to medium temperature + 22 °C ② = resistant up to medium temperature + 48 °C „-“ = Non-resistant
 □ = Conditionally stable ① = conditionally resistant up to medium temperature + 22 °C ② = conditionally resistant up to medium temperature + 48 °C

Chemical Resistance Table

Lutz Double Diaphragm Pumps

Urine – Zinc Sulfate

No. Medium		Plastics			Metals		Elastomers							
		Nylon	Polypropylene	Kynar® (PVDF)	Stainless steel 1.4404 (316)	Aluminium	Buna N	EPDM	Geolast®	Neoprene	Santoprene®	Polyurethane	Viton®	PTFE®
672	Urine	①	○	○	○	○	○	○	-	○	-	○	○	○
673	Valeric Acid					○	-	○	-	○	-	○		○
674	Vanilla Extract (Vanillin)				○		○		○	-		-		○
675	Varnish	-	○	○	○	○	□	-	□	-	□	□	○	○
676	Vegetable Juice				○	-	○	○	○	-	○	○		○
677	Vinegar	-	○	○	○	-	-	○	-	□	○	□	○	○
678	Vinyl Acetate		□	○	○	□	-	-	-	□		-		○
679	Vinyl Chloride (Chlorethylene)	①	-	□	○	-	-	-	-	-	-		○	○
680	Water, Acid, Mine	□	○	○	□	-	○	○	○	-	○	○	○	○
681	Water, Deionized	①	○	○	○	○	○	○	○	□	○	○	○	○
682	Water, Distilled	①	○	○	○	○	○	○	○	□	○	○	○	○
683	Water, Fresh	①	○	○	○	○	○	○	○	□	○	○	○	○
684	Weed Killers	○			○	-	□		□	-	□		○	○
685	Whey			○	○	□	○		○		○		○	○
686	Whiskey & Wines	①	○	○	○	○	○	○	○	○	○	-	○	○
687	White Liquor (Pulp Mill)		○	○	○	□	□	○		○	○		□	○
688	White Water (Paper Mill)	○	○		○					○	○		○	○
689	Xylene	②	-	○	□	○	-	-	-	-	-	-	○	○
690	Zinc Acetate, aqueous				○	-	-	-	○	-	○	-	-	○
691	Zinc Carbonate				□	□	○		○				○	○
692	Zinc Chloride	-	○	○	-	-	○	○	○	○	○	○	○	○
693	Zinc Hydrosulfite		○	○	○	-	○		○	○			○	○
694	Zinc Sulfate		○	○	○	-	○	○	○	○	○	□	□	○

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