




Peristaltic Pump Tubing

Types of Materials

Our Elkay™ microbore tubing for peristaltic pumps has a reputation for reliable perfomance.

Tubing has been designed to fit many peristaltic pumps and instrumentation which include:

Pumps: Ismatec™, Gilson®, Watson-Marlow® and Skalar to name a few.

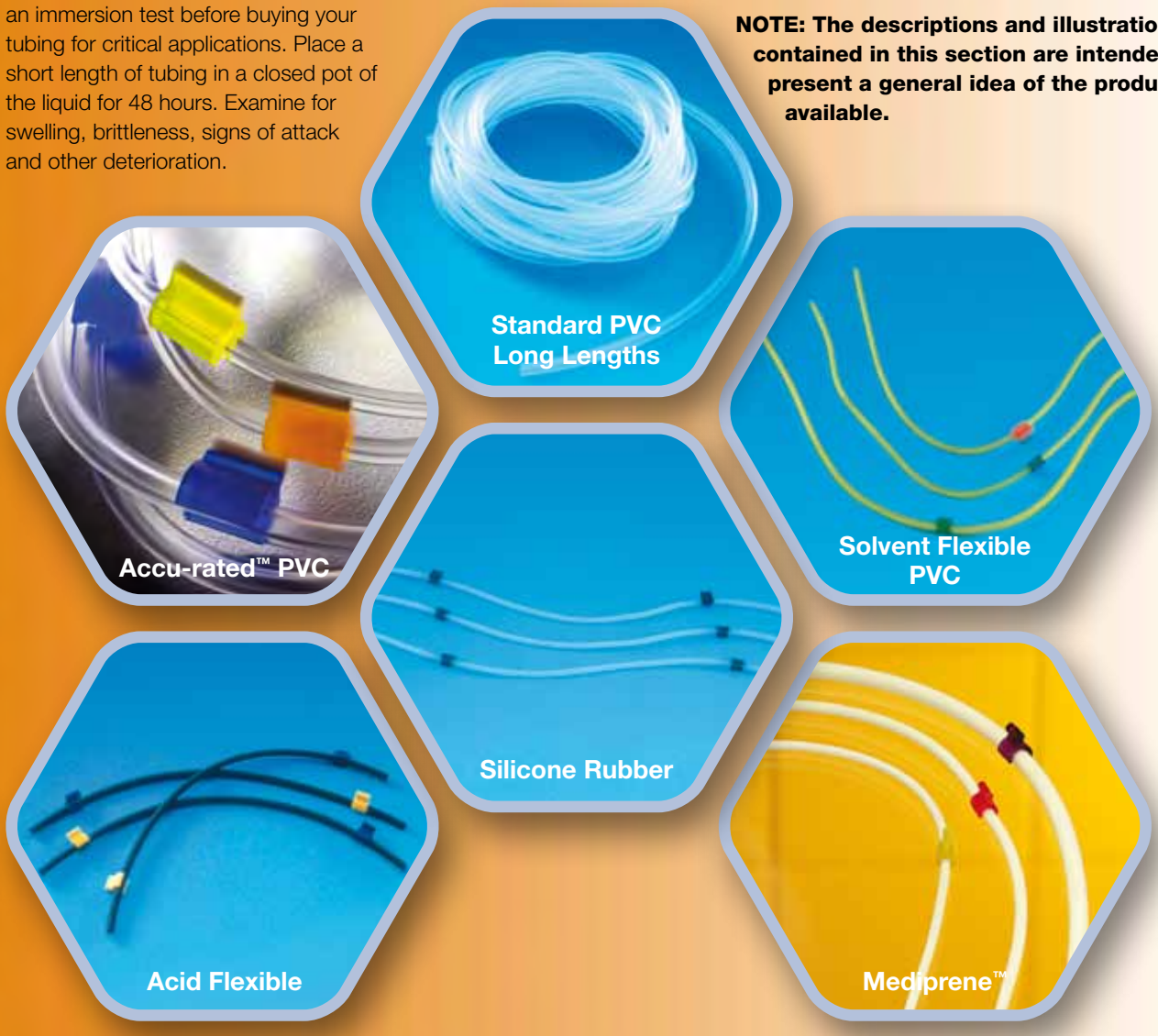
Instruments: Perkin Elmer™, Thermo® ICP instrumentation, flame photometers and many others.

Our range of pump tubing is ideal for research and routine use. A range of raw materials are listed which offer varying degrees of chemical resistance. To check the suitability of the material, a useful tubing chemical compatibility chart is available on page 100 or visit our website: www.elkay-uk.co.uk.

Immersion Test: We recommend you conduct an immersion test before buying your tubing for critical applications. Place a short length of tubing in a closed pot of the liquid for 48 hours. Examine for swelling, brittleness, signs of attack and other deterioration.

1. Accu-rated™ PVC
   Flow-rated, transparent, general laboratory use, non-toxic, non-ageing, good resistance to most routine chemicals.
2. Standard PVC Long Lengths
   As Accu-rated™ but not flow-rated.
3. Solvent Flexible PVC
   PVC but special formulation for routine solvent use, yellow colouration.
4. Acid Flexible
   Vulcanised rubber compound, used with strong acids, alkalis and solvents, high operating temperatures.
5. Silicone Rubber
   Free of additives and plasticisers, will not age or deteriorate over time, translucent, broad compatibility with acids, alkalis and solvents.
6. Mediprene™
   Thermoplastic, medical grade rubber, exceptional resistance to UV light, strong chemicals, high temperatures and less gas permeable than silicone.

NOTE: The descriptions and illustrations contained in this section are intended to present a general idea of the products available.



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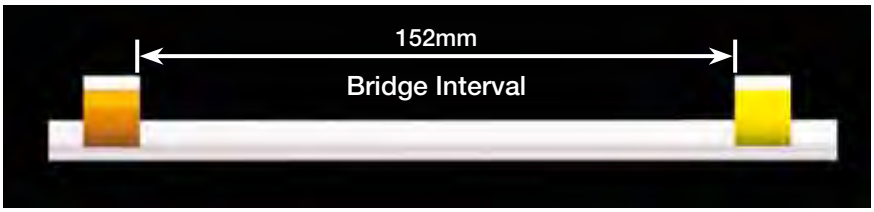
Accu-rated™ PVC Pump Tubing - 0549-Series

Transparent, flow-rated tubing for general laboratory use.

- Non-toxic
- Non-ageing
- High resistance to most routine chemicals (particularly milk acids, alkalis and salt solutions)
- Provides consistant and accurate flow rates
- Accu-rated™ is a specially formulated, medical grade PVC that has been heat treated for increased life.
- Durometer of 60 - Bends easily, grips connectors firmly and simplifies pump setups



Accu-rated™ PVC Pump Tubing

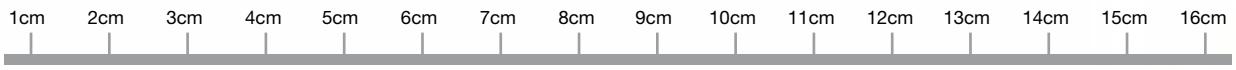
CATALOGUE NUMBER	BRIDGE COLOURS	NOMINAL OUTER DIAMETER mm	FLOW cc / min	UNIT QTY	UNIT PRICE (£)
116-0549-020	Orange / Red	2.019	0.030	12	21.00
116-0549-030	Orange / Blue	2.083	0.050	12	21.00
116-0549-040	Orange / Green	2.210	0.100	12	21.00
116-0549-050	Orange / Yellow	2.337	0.160	12	21.00
116-0549-060	Orange / White	2.464	0.230	12	21.00
116-0549-070	Black / Black	2.438	0.320	12	21.00
116-0549-080	Orange / Orange	2.565	0.420	12	21.00
116-0549-090	White / White	2.692	0.600	12	21.00
116-0549-100	Red / Red	2.819	0.800	12	21.00
116-0549-110	Grey / Grey	2.972	1.000	12	21.00
116-0549-120	Yellow / Yellow	3.099	1.200	12	21.00
116-0549-130	Blue / Blue	3.327	1.600	12	21.00
116-0549-140	Green / Green	3.531	2.000	12	21.00
116-0549-150	Purple / Purple	3.734	2.500	12	21.00
116-0549-160	Purple / Black	3.962	2.900	12	21.00
116-0549-170	Purple / Orange	4.216	3.400	12	21.00
116-0549-180	Purple / White	4.470	3.900	12	21.00
116-0549-190	Blue / Yellow	3.200	1.400	12	21.00

Flared pump tubing available
please call us for details

Technical Specification

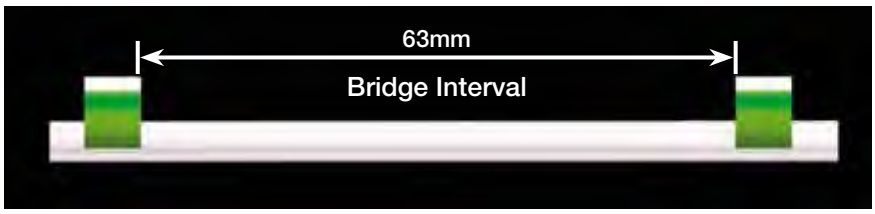
Material	Medical grade PVC
Durometer	60 Shore A
Colour	Clear
Maximum Operating Temperature	94°C (165°F)

Bridge Distance Checker (cm)



PVC Pump Tubing - 178-Series

- Same properties as Accu-rated™ PVC tubing, but 178-series can be used with Skalar SAN and Bran & Lubbe systems.



Technical Specification

Material	Medical grade PVC
Durometer	60 Shore A
Colour	Clear
Maximum Operating Temperature	94°C (165°F)

PVC Pump Tubing, 178-Series

CATALOGUE NUMBER	BRIDGE COLOURS	LENGTH mm	FLOW cc / min	UNIT QTY	UNIT PRICE (£)
178-3748-030	Orange / Blue	660	0.037	12	23.00
178-3748-040	Orange / Green	660	0.074	12	23.00
178-3748-050	Orange / Yellow	660	0.118	12	23.00
178-3748-060	Orange / White	660	0.166	12	23.00
178-3748-070	Black / Black	660	0.226	12	23.00
178-3748-080	Orange / Orange	406	0.287	12	23.00
178-3748-090	White / White	406	0.385	12	23.00
178-3748-100	Red / Red	406	0.482	12	23.00
178-3748-110	Grey / Grey	406	0.568	12	23.00
178-3748-120	Yellow / Yellow	406	0.642	12	23.00
178-3748-140	Green / Green	406	0.947	12	23.00

Standard PVC Pump Tubing *in 15m lengths*

- Transparent, allows for convenient flow monitoring.
- High resistance to most routine chemicals (particularly milk acids, alkalis and salt solutions).
- Durometer of 60 - Bends easily, grips connectors firmly and simplifies pump setups.

Standard PVC Pump Tubing

CATALOGUE NUMBER	BRIDGE COLOURS	INNER DIAMETER mm	OUTER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-0536-030	none	0.254	2.083	15m	28.50
116-0536-040	none	0.381	2.210	15m	28.50
116-0536-050	none	0.508	2.337	15m	28.50
116-0536-060	none	0.635	2.464	15m	28.50
116-0536-070	none	0.762	2.438	15m	28.50
116-0536-080	none	0.889	2.565	15m	28.50
116-0536-090	none	1.016	2.692	15m	28.50
116-0536-100	none	1.143	2.819	15m	28.50
116-0536-110	none	1.295	2.972	15m	28.50
116-0536-120	none	1.422	3.099	15m	28.50
116-0536-130	none	1.651	3.327	15m	28.50
116-0536-140	none	1.854	3.531	15m	28.50
116-0536-150	none	2.057	3.734	15m	28.50
116-0536-160	none	2.286	3.962	15m	28.50
116-0536-170	none	2.540	4.216	15m	28.50
116-0536-180	none	2.794	4.470	15m	28.50
116-0536-190	none	1.524	3.200	15m	28.50
116-0536-200	none	3.175	4.851	15m	28.50

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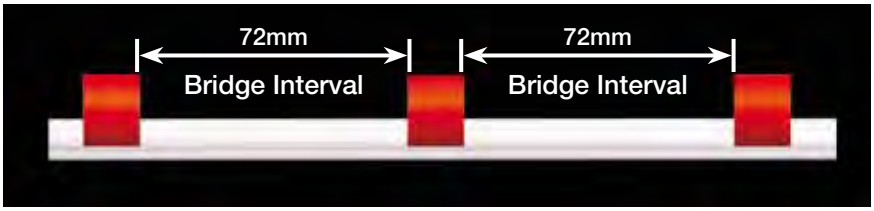
3 Bridge PVC Pump Tubing - 'C' Series

3 bridge pump tubing developed for more specialised pump systems such as Induction Coupled Plasma (ICP).

- Used on various peristaltic pumps including Ismatec®.
- Bridge intervals are 72mm.

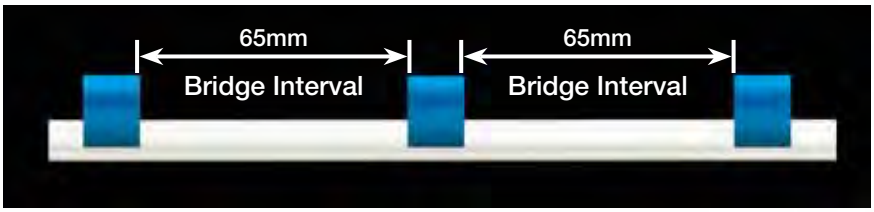


3 Bridge PVC Pump Tubing - 'C' Series

CATALOGUE NUMBER	BRIDGE COLOURS	NOMINAL INNER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-0549-C55	Orange / White / Orange	0.64	12	31.00
116-0549-C56	Black	0.76	12	31.00
116-0549-C57	Orange	0.89	12	31.00
116-0549-C59	White	1.02	12	31.00
116-0549-C60	White / Red / White	1.09	12	31.00
116-0549-C61	Red	1.14	12	31.00
116-0549-C63	Grey	1.30	12	31.00
116-0549-C65	Yellow / Blue / Yellow	1.52	12	31.00
116-0549-C73	Black / White / Black	3.18	12	31.00

3 Bridge PVC Pump Tubing - 'E' Series

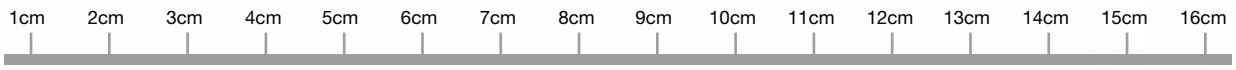
- Used with pumps requiring shorter bridge intervals than 'C' series.



3 Bridge PVC Pump Tubing - 'C' Series

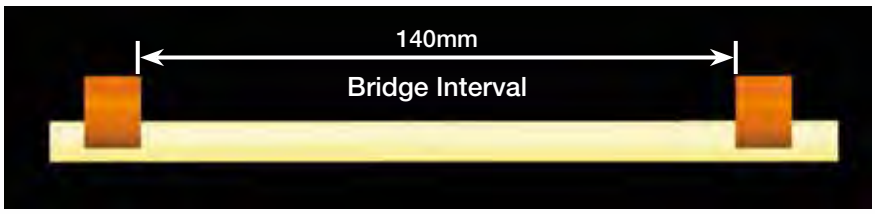
CATALOGUE NUMBER	BRIDGE COLOURS	NOMINAL INNER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-E549-050	Orange / Yellow / Orange	0.51	12	31.00
116-E549-060	Orange / White / Orange	0.64	12	31.00
116-E549-070	Black	0.76	12	31.00
116-E549-080	Orange	0.89	12	31.00
116-E549-090	White	1.02	12	31.00
116-E549-100	Red	1.14	12	31.00
116-E549-110	Grey	1.30	12	31.00
116-E549-120	Yellow	1.42	12	31.00
116-E549-130	Blue	1.65	12	31.00
116-E549-140	Green	1.85	12	31.00
116-E549-150	Purple	2.05	12	31.00

Bridge Distance Checker (cm)



Solvent Flexible PVC Manifold Pump Tubing

- Manufactured from a uniquely formulated medical grade PVC with yellow colouration.
- Ensures long pumping life when using routine solvents in medical applications.



Technical Specification

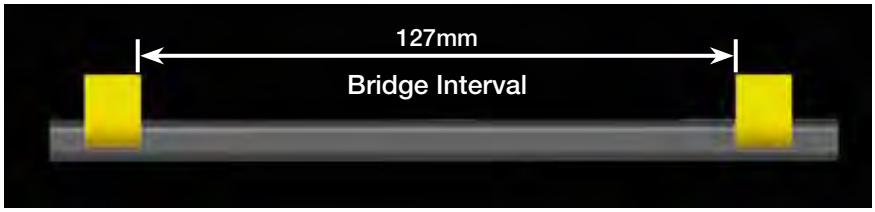
Material	Medical grade PVC
Durometer	60 Shore A
Colour	Yellow Translucent
Maximum Operating Temperature	94°C (165°F)

Solvent Flexible PVC Manifold Pump Tubing

CATALOGUE NUMBER	BRIDGE COLOURS	INNER DIAMETER mm	OUTER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-0533-030	Orange / Blue	0.254	2.083	12	21.00
116-0533-070	Black	0.762	2.438	12	21.00
116-0533-090	White	1.016	2.692	12	21.00
116-0533-100	Red	1.143	2.819	12	21.00
116-0533-110	Grey	1.295	2.972	12	21.00
116-0533-120	Yellow	1.422	3.099	12	21.00
116-0533-130	Blue	1.651	3.327	12	21.00

Acid Flexible Pump Tubing

- Extruded from a unique blend of Viton® rubber to deliver longer pumping life.
- Especially recommended for use with strong acids, alkalis and solvents.
- Flexible enough to resist cracks and flex-fatigue in peristaltic pumps.
- Every lot is precision made, vulcanised and quality tested for consistent dimensions and performance.



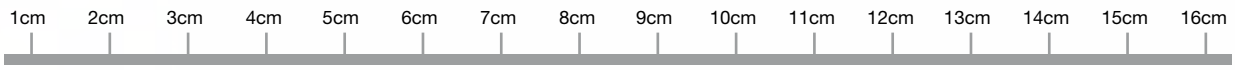
Technical Specification

Material	Viton®
Durometer	60 Shore A
Colour	Black
Maximum Operating Temperature	205°C (400°F)

Acid Flexible Pump Tubing

CATALOGUE NUMBER	BRIDGE COLOURS	INNER DIAMETER mm	OUTER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-0651-080	Orange / Orange	0.889	2.718	12	70.00
116-0651-090	White / White	1.016	2.845	12	70.00
116-0651-100	Red / Red	1.143	2.972	12	70.00
116-0651-110	Grey / Grey	1.295	3.124	12	70.00
116-0651-120	Yellow / Yellow	1.422	3.251	12	70.00
116-0651-130	Blue / Blue	1.651	3.480	12	70.00
116-0651-140	Green / Green	1.854	3.683	12	70.00
116-0651-150	Purple / Purple	2.057	3.886	12	70.00

Bridge Distance Checker (cm)



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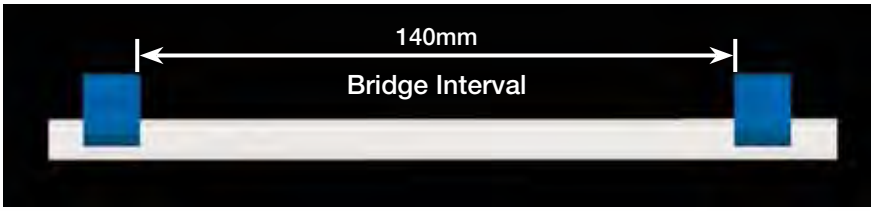
Silicone Pump Tubing

- Highly flexible and free of additives or plasticizers.
- Will not readily age, oxidize or deteriorate over time.
- Excellent flow characteristics.
- Broad compatibility with most acids, alkalis and solvents.
- Wall thickness of 0.914mm / 0.036 inches.



Technical Specification

Material	Medical grade Silicone
Durometer	45-55 Shore A
Colour	Translucent
Maximum Operating Temperature	205°C (400°F)

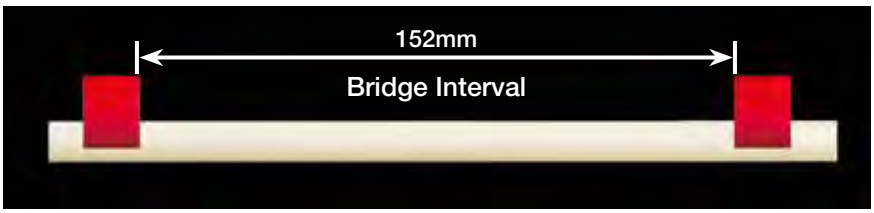
Silicone Pump Tubing

CATALOGUE NUMBER	BRIDGE COLOURS	INNER DIAMETER mm	OUTER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-0497-070	Orange / White	0.635	2.464	6	30.00
116-0497-080	Black	0.762	2.591	6	30.00
116-0497-090	Orange	0.889	2.718	6	30.00
116-0497-100	White	1.016	2.845	6	30.00
116-0497-110	Red	1.143	2.972	6	30.00
116-0497-120	Grey	1.295	3.124	6	30.00
116-0497-130	Yellow	1.422	3.251	6	30.00
116-0497-140	Yellow / Blue	1.524	3.353	6	30.00
116-0497-150	Blue	1.651	3.480	6	30.00
116-0497-170	Purple	2.057	3.886	6	30.00
116-0497-180	Purple / Black	2.311	4.140	6	30.00

Mediprene™ Pump Tubing

Elkay Mediprene® pump tubing has exceptional life expectancy for peristaltic pump applications.

- Mediprene® pump tubing is made from Santoprene®, a thermoplastic medical grade rubber.
- Highly flexible tubing reduces failure and contamination.
- Meets USP Class IV and FDA criterias.
- Less gas permeable than silicone.
- Highly resistant to UV light exposure and strong chemicals.
- 3 bridge Mediprene tubing for more specialised pump systems available on request.



Technical Specification

Material	Santoprene®
Durometer	55 Shore A
Colour	Beige
Maximum Operating Temperature	+135°C

Mediprene™ Pump Tubing

CATALOGUE NUMBER	BRIDGE COLOURS	INNER DIAMETER mm	OUTER DIAMETER mm	UNIT QTY	UNIT PRICE (£)
116-MEDI-025	Orange / White	0.635	2.464	6	25.00
116-MEDI-030	Black	0.762	2.591	6	25.00
116-MEDI-035	Orange	0.889	2.718	6	25.00
116-MEDI-040	White	1.016	2.845	6	25.00
116-MEDI-045	Red	1.143	2.972	6	25.00
116-MEDI-056	Yellow	1.422	3.251	6	25.00
116-MEDI-058	Translucent	1.473	3.302	6	25.00
116-MEDI-060	Yellow / Blue	1.524	3.353	6	25.00
116-MEDI-065	Blue	1.651	3.480	6	25.00
116-MEDI-073	Green	1.854	3.683	6	25.00
116-MEDI-081	Purple	2.057	3.886	6	25.00
116-MEDI-090	Purple / Black	2.311	4.140	6	25.00
116-MEDI-100	Purple / Orange	2.540	4.380	6	25.00
116-MEDI-110	Purple / White	2.790	4.620	6	25.00

Tubing Compatibility Chart

	PVC	Silicone	Viton
Acetaldehyde	3	1	3
Acetates	3	n/a	n/a
Acetic acid >5%	2	2	1
Acetic acids < 5%	1	1	1
Acetic Anhydride	3	3	3
Acetone	3	2	3
Acetonitrile	3	n/a	3
Acetyl bromide	3	3	3
Acetyl chloride	3	3	3
Air	1	1	1
Alcohols	2	3	3
Aliphatic hydrocarbons	2	2	2
Aluminum chloride	1	3	1
Aluminum sulfate	n/a	1	1
Alums	1	1	1
Ammonia (gas-liquid)	2	2	3
Ammonium acetate	1	1	3
Ammonium carbonate	n/a	2	n/a
Ammonium chloride	1	2	1
Ammonium hydroxide	2	1	2
Ammonium nitrate	1	1	1
Ammonium phosphate	1	1	1
Ammonium salts	1	1	3
Ammonium sulfate	1	1	1
Amyl acetate	3	3	3
Amyl alcohol	2	3	3
Amyl chloride	2	3	2
Aniline	3	3	3
Aniline hydrochloride	3	3	3
Antimony salts	1	1	1
Aqua regia	3	3	3
Arsenic salts	1	1	1
Barium salts	1	1	1
Benzaldehyde	3	3	3
Benzene	2	3	2
Benzenesulfonic acid	2	3	2
Benzoic acid	1	2	1
Benzyl alcohol	2	2	1
Bleaching liquors	2	3	1
Boric acid	1	1	1
Bromine 1	1	3	1
Butane	2	3	1
Butanol	2	3	1
Butyric acid	2	3	n/a
Calcium oxide	n/a	1	n/a
Calcium salts	1	2	1
Carbon dioxide	1	2	3
Carbon bisulfide	3	n/a	1
Carbon tetrachloride	3	3	1
Chlorine (dry)	1	3	1
Chlorine (wet)	2	3	1
Chloroacetic acid	3	3	3
Chlorobenzene	3	3	1
Chloroform	3	3	1
Chlorosulfonic acid	2	3	3
Chromic acid	1	3	1
Chromium salts	1	n/a	n/a

	PVC	Silicone	Viton
Copper salts	1	1	1
Cresol	3	1	1
Cyclohexane	2	3	1
Cyclohexanone	3	3	3
Essential Oils	2	n/a	n/a
Ethers	3	3	3
Ethyl acetate	3	3	3
Ethyl bromide	3	3	1
Ethyl chloride	3	3	1
Ethylene chlorohydrin	2	2	3
Ethylene glycol	2	1	1
Fatty acids	1	3	1
Ferric & ferric salts	2	3	1
Ferric chloride	1	2	1
Ferric sulfate	1	2	1
Ferrous chloride	1	n/a	n/a
Ferrous sulfate	1	2	1
Fluoborate salts	1	n/a	n/a
Fluoboric acid	1	n/a	n/a
Fluosilicic acid	1	n/a	1
Formaldehyde	2	2	2
Formic acid	2	3	3
Freon	3	3	3
Glucose	1	1	1
Glycerine	2	2	3
Hydriodic acid	1	n/a	n/a
Hydro-bromic acid	1	3	1
Hydrochloric acid	1	1	1
Hydrochloric acid (dil.)	1	3	1
Hydrochloric acid(conc.)	1	3	1
Hydrocyanic acid	1	3	1
Hydrofluoric acid	2	3	1
Hydrogen peroxide (dil.)	1	3	1
Hydrogen sulfide	1	3	3
Hydrochlorous acid	1	1	1
Iodine and solutions	1	3	2
Ketones	3	n/a	n/a
Lacquer solvents	3	3	n/a
Lactic acid	1	1	1
Lead acetate	n/a	3	n/a
Lead salts	1	3	1
Linseed oil	3	3	3
Magnesium chloride	1	1	1
Magnesium sulfate	n/a	1	1
Malic acid	1	2	1
Manganese salts	1	1	1
Mercury salts	1	1	1
Methanol	1	1	3
Methyl chloride	3	3	1
Mixed acid (40% sulfuric, 15% nitric)	2	3	1
Naphtha	2	3	1
Natural gas	1	1	1
Nickle salts	1	1	1
Nitric acid (dil.)	1	2	1
Nitric acid (med.conc.)	1	3	1
Nitric acid (conc.)	2	3	2

	PVC	Silicone	Viton
Nitrobenzene	3	1	2
Nitrogen oxides	1	3	3
Nitrous acid	1	n/a	n/a
Oils, vegetable	2	3	1
Oils, mineral	1	3	1
Oleic acid	3	3	3
Oxalic acid	1	2	1
Oxygen (gas)	1	2	2
Perchloric acid	3	3	1
Phenol	2	3	1
Phosphoric acid (50%)	1	3	1
Phthalic acid	1	n/a	n/a
Plating solutions	1	3	1
Potassium hydroxide (med)	1	2	2
Potasium hydroxide (conc.)	1	3	2
Potassium iodide	1	1	1
Potassium salts	1	1	1
Pyridine	3	3	3
Silver nitrate	1	1	1
Soap solutions	1	1	1
Sodium bicarbonate	1	1	1
Sodium bisulfite	n/a	1	1
Sodium borate	n/a	1	1
Sodium carbonate	n/a	1	1
Sodium chloride	1	2	1
Sodium hydroxide (dil.)	1	2	1
Sodium hydroxide, 25%	1	3	2
Sodium hydroxide (conc.)	1	2	2
Sodium hypochlorite <5%	2	2	1
Sodium hypochlorite >5%	2	2	2
Sodium salts	1	1	1
Stearic acid	1	2	1
Sulfur chloride	2	3	1
Sulfur dioxide	2	2	2
Sulfur trioxide	2	3	1
Sulfuric acid (dil.)	1	3	1
Sulfuric acid (med.conc.)	1	3	1
Sulfuric acid (conc.)	3	3	2
Sulfurous acid	1	3	1
Tannic acid	1	3	1
Tanning extracts	1	n/a	n/a
Tartaric acid	1	1	1
Tin salts	1	n/a	1
Titanium salts	1	3	1
Toluol	3	3	3
Tri-sodium phosphate	1	1	1
Trichloracetic acid	2	3	3
Turpentine	2	3	1
Urea	1	1	3
Uric acid	1	1	1
Water, fresh	1	1	1
Water, salt	1	1	1
Xylene	3	3	1
Zinc chloride	1	3	1

The information in this chart is to be used only as a general guideline.

Performances may vary because of the many factors that can affect the chemical resistance of a given product.

Elkay (UK) does not warrant (either implied or expressed) that the information in this table is accurate or complete or that any material is suitable for the stated use.

Code 1	Recommended
Code 2	Acceptable but evaluation under specific operating conditions advisable
Code 3	Not recommended

tel: **01256 811118** fax: **01256 811116** Elkay-uk.co.uk

Plastic Physical Compatibilities

PROCESS	POLYSTYRENE	POLYPROPYLENE	HIGH DENSITY POLYETHYLENE	LOW DENSITY POLYETHYLENE
Autoclavable	NO	YES	NO	NO
Chemical Sterilisation	NO	YES	YES	YES
Dry Heat Sterilisation at 160ºC	NO	NO	NO	NO
Radiation Sterilisation	YES	YES	YES	YES
Gas Sterilisation, Ethylene Oxide	YES	YES	YES	YES
Brittle Temperature	0ºC (32ºF)	-40ºC (-40ºF)	-40ºC (-40ºF)	-40ºC (-40ºF)
Heat Distortion Temperature	70ºC (158ºF)	135ºC (275ºF)	121ºC (250ºF)	50ºC (90ºF)
Specific Gravity	1.040	0.903	0.944	0.92
Transparency	Clear	Translucent	Translucent	Translucent

Plastic Chemical Compatibilities

CHEMICAL CLASS	POLYPROPYLENE	POLYETHYLENE	POLYSTYRENE
Aliphatic Hydrocarbon	Fair	Fair	Poor
Aromatic Hydrocarbons	Fair	Fair	Poor
Full Halogenated Hydrocarbons	Poor	Poor	Poor
Partially Halogenated Hydrocarbons	Poor	Poor	Poor
Alcohols - Monohydric	Good	Fair	Good
Polyhydric	Excellent	Good	Good
Phenols	Poor	Excellent	Poor
Ketones	Good	Good	Poor
Esters	Good	Good	Poor
Ethers	Fair	Good	Poor
Inorganic Acids - Concentrated	Excellent	Good	Fair
Inorganic Acids - Dilute	Excellent	Excellent	Good
Bases - Concentrated	Excellent	Good	Fair
Bases - Dilute	Excellent	Good	Excellent
Salts - Acid	Excellent	Excellent	Good
Neutral	Excellent	Excellent	Excellent
Basic	Excellent	Excellent	Good
Organic Acids - Concentrated	Good	Excellent	Poor
Organic Acids - Dilute	Excellent	Excellent	Fair
Oxidizing Agents - Concentrated	Poor	Poor	Poor
Oxidizing Agents - Dilute	Good	Good	Fair

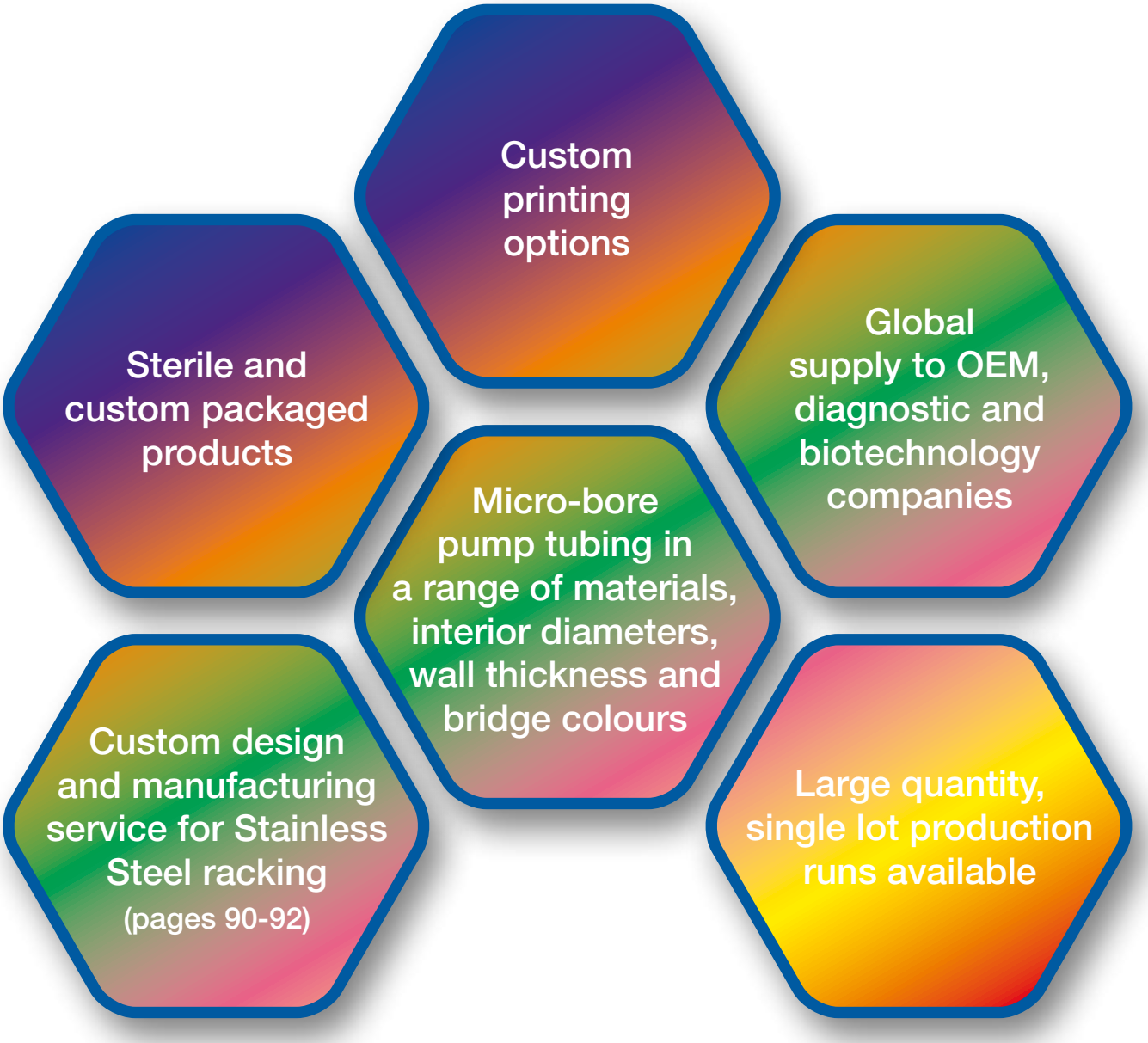
This is only a general guideline of recommendations and not guarantees of performance.

Factors such as concentration, temperature, stress and length of exposure can affect performance. Chemicals can affect the strength, flexibility, surface appearance, colour, dimensions and weight of plastics.

We recommend you test materials under actual conditions to determine suitability for applications.

Custom manufacturing and packaging services

Elkay has over 30 years experience supplying precision laboratory consumables to laboratories, diagnostic companies and other Original Equipment Manufacturers (O.E.M.) throughout the world. Whether it is a critical consumable for a diagnostic test kit, bespoke pump tubing for a new pump / analyser or special packaging, we are sure we have a cost effective solution to meet your custom OEM needs.



For more information on Elkay's custom manufacturing & packaging capabilities, call us on +44 (0) 1256 811118 or e-mail sales@elkay-uk.co.uk