

**Luft- eller væsketemperatur  
indtil 20° C**

**Uponor**

**Kemisk bestandighedstabel**



# Kemisk resistens

Når et materiales kemiske resistens skal vurderes, indgår der en række parametre om blandt andet temperatur, koncentration, tid og tryk. Herudover er det væsentligt at være opmærksom på følgende:

- Forekommer der olie eller olieholdige væsker i eller omkring jordlagte regn- og spildevandsledninger, skal der anvendes olie- og benzinbestandige tætningsringe. Disse vil være markeret med gult.
- DS 439 anbefaler, at der ikke anvendes plastrør til vandforsyning, hvor der er salg eller oplagring af benzin. Ligeledes anbefales brug af andre typer materialer i forurenede jord.

Uponor anvender i dag materialer, der som udgangspunkt har god bestandighed over for de kemiske stoffer, som systemerne forventes at kunne blive udsat for under normale omstændigheder.

En vurdering skal tage udgangspunkt i såvel de anvendte rørmaterialer som de anvendte samlingsmetoder og tætningsringe.

Er der behov for en mere dybdegående vurdering, findes yderligere information i:

- DS/ISO/TR 10358 "Plastrør og formstykker – Kemisk modstandsevne – Klassifikation – Tabel"
- ISO/TR 7620 "Rubber materials – Chemical resistance".

I disse certificeringer beskrives typisk anvendte materialers resistens over for mere end 400 kemiske stoffer.

## Følgende skema vil være vejledende ved vurdering af kemisk bestandighed.

- **Bestandighed**  
Materialet påvirkes ikke. Højeste resistens/korrosions sikker.
- ▮ **Delvis bestandighed**  
Materialet angribes og har kortere levetid.
- **Ikke bestandighed**  
Materialet kan ikke anvendes.

# Luft- eller væske-temperatur indtil 20°C

- Bestandig
- ▶ Delvis bestandig
- Ikke bestandig

PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Acetaldehyd	○	○	○	●	●	▶	●
Acetone	○	○	○	●	●	▶	●
Allylalkohol	▶	▶		▶	▶	▶	●
Aluminiumsulfat	●	●	●	●	●	●	●
Aminosyre	●	●	▶	●	●	●	●
Ammoniak luftformig	●	▶	●	●	●	●	●
Ammoniak flydende	▶	●	●	●	●	●	●
Ammoniumklorid	●	●	●	●	●	●	▶
Ammoniumnitrat	●	●	●	●	●	●	▶
Ammoniumsulfat	●	▶	●	●	●	●	▶
Ammoniumsulfid	●	▶	●	●	▶	●	▶
Anilin	○	○	○			▶	●
Asfalt	●	○				●	●
Benzaldehyd	○	○	○			●	●
Benzen (Benzol)	○	○	●			▶	▶
Benzin	●	○	●	○	●	▶	▶
Benzin-Benzen-blanding	○	○	●	○	●	▶	▶
Benzoesyre	●	●				●	●
Blegevand	●	○	○				●
Blyacetat	●	●	●			●	●
Borax	●	●	●			●	●
Borsyre	●	●	●	●	●	●	●
Bremsevæske	●	●	●			▶	▶
Brint (hydrogen)	●	▶	●	●	●	▶	▶
Brintoverilte	●	○	○	●	●	●	●
Brom, flydende	○	○	○	○	○	○	○
Brændselolie	●	○	●	○	●	▶	▶
Butan (gasformig)	●	○	●	●	●	●	●
Butylacetat	▶	○	○	●	▶	▶	▶

- Bestandig
- ▶ Delvis bestandig
- Ikke bestandig

PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Calciumcarbonat	●	●	●	●	●	●	●
Calciumklorid	●	●	●	●	●	●	●
Calciumnitrat	●	●	●	●	●	●	●
Chlor-luftformig	▶	○	○	○	○	▶	○
Chlor-vandig	▶	○	○	○	○	▶	●
Citronsyre	●	●	●	●	●	●	●
Cresol	○	○	●			▶	●
Cyanbrite, blåsyre	●	▶	▶	●	●	●	●
Cyclohexanol	○	○	●			▶	●
Dextrin	●	●	●	●	●	●	●
Druesukker	●	●	●	●	●	●	●
Eddikesyre	●	○	○	▶	●	▶	●
Etanol, Spiritus	●	●	●	●	●	●	●
Ethylacetat	○	○	○	▶	▶	●	▶
Ethylalkohol	●	●	●	●	●	●	●
Ethylenglycol	●	●	●	●	●	▶	●
Ethylether	○	○	○	○	○	○	●
Fenol	▶	○	○	○	●	●	●
Fluor	●	○	○	○	○	○	
Flussyre	●	○	▶	▶	▶	●	●
Formaldehyd	●	●	●	●	●	▶	●
Fosforklorid	○	○	○	●	▶	●	●
Fosforsyre	●	○	●	●	●	●	●
Fosforvand	●			○			
Fotobade	●	▶		○		●	●
Frugtsaft	●	●	●	●	●	●	●
Frugtsukker	●	●	●	●	●	●	●

# Luft- eller væske-temperatur indtil 20°C

- Beständig
- ▶ Delvis beständig
- Ikke beständig

PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Garveekstrakt (Tannin)	●	▶	●	●	●	●
Garvesyre	●	●	●	●	●	●
Glaubersalt	●	▶	●	●	●	●
Glucose	●	●	●	●	●	●
Glycerin	●	●	●	●	●	●
Glycol	●	●	●	●	●	●
Gødningsalte	●	●	●	●	●	●

Heptan	●	○	●	▶	○	●
Hydrogensulfid	●	▶	▶	▶	●	●

Iseddike	▶	○	○	●	●	●
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Jern-II-Klorid (ferrikklorid)	●	●	●	●	●	●
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Jernsulfat			●	●		
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Jod	○	●	●	●	●	●
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Kaliumbichromat	●	○	●	●	●	●
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Kaliumklorid	●	●	●	●	●	●
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Kaliumcyanid	●	●	●	●	●	●
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Kaliumnitrat	●	●	●	●	●	●
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Kaliumpermanganat	●	▶	▶	●	●	●
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Klor - luftformig, tør	●	▶	○	▶	▶	▶
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Kloroform	○	○	○	○	▶	○
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Klorvand (svømmehaller)	●	○	○	▶	▶	●
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Kobbercyanid	●	●	●	●	●	●
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Kobberfluorid	●	●	●	●	●	●
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Kobberklorid	●	●	●	●	●	●
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Kobbernitrat	●	●	●	●	●	●
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Kongevand	▶	○	○	○	○	○
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Kuldioxyd	●	▶	●	●	●	●
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- Beständig
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PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Kulilte	●	▶	●	●	●	●
Kulsyre	●	▶	●	●	●	●
Kviksølv	●	●	●	●	●	●

Limvand	●	●	●	●	●	●
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Linolie	●	○	●		▶	●
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Linoliesyre	●	○	●		▶	●
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Lud (natriumhydroxid)	●	▶	▶	●	●	●
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Methan - jordgas	●	○	●	○	●	●
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Methylalkohol	●	●	●	●	▶	●
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Methylenklorid	○	○	○	○	▶	▶
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Methylklorid	○	○	○	○	○	○
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Mineralolie	●	○	●	▶	●	●
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Myresyre	●	▶	○	▶	●	●
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Mælkesyre	●	●	●	●	▶	●
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Mælk	●	●	●	●	●	●
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Naphta	●	○	●	○	▶	●
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Naphtalen	○	○	▶	○	▶	●
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Natriumcarbonat (soda)	●	●	●	●	●	●
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Natriumfosfat	●	●	●	●	▶	●
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Natriumklorat	●	●	●	●	●	●
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Natriumklorid	●	●	●	●	●	●
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Natriumnitrat	●	●	●	●	●	●
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Natriumsulfat (glaubersalt)	●	▶	●	●	●	●
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Natronlud	●	▶	▶	●	●	●
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Naturgas	●	○	●	○	●	●
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Nikkelklorid	●	●	●	●	●	●
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Nikotin	●	▶			▶	●
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Nitrobenzen	○	○	○	○	▶	○
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# Luft- eller væske-temperatur indtil 20° C

- Beständig
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	PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Oleum (rygende svovlsyre)	○	○	○	○	○	○	●
Olier og fedtstoffer	●	○	●	▸	●	▸	●
Oxalsyre	●	▸	●			▸	●
Oxygen	●	▸				●	●
Ozon	●	○		○	●	▸	▸

Palmitinsyre	●	▸	●			▸	●
Paraffin	●		●	○		▸	●
Petroleum (kerosin)	●	○	●	○	●	▸	●
Picrinsyre	●	○	●			●	●
Propan	●	○	●	○	●	●	●

Ricinusolie	●	○	●	○	●	●	●
Rygende svovlsyre (oleum)	○	○	○	○	○	○	●

Salpetersyre	●	○	○	●	●	▸	●
Saltlage	●	●	●	●	●	●	●
Saltsyre	●	○	▸	●	●	●	●
Saltvand	●	●	●	●	●	●	●

Smøreolie	●	○	●	▸	●	▸	●
Smørsyre	▸	○	●	○	○	●	●

Soda	●	●	●	●	●	●	●
Stearinsyre	●	○	●	○	●	▸	●

Sukker	●	●	●	●	●	●	●
Svovl	●	○	▸	●	●	●	●

Svovlbriente	●	▸	▸	▸	▸	●	●
Svovlkulstof	○	○	○			▸	●

Svovlsyre	●	▸	▸	●	●	●	●
Svovlsyrling	●	▸	▸	▸	●	●	●

Sæbe	●	▸	●	●	●	●	●
Sølvnitrat	●	●	●	●	●	●	●

Søvand (havvand)	●	●	●	●	●	●	●
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- Beständig
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	PVC (Polyvinylchlorid)	Gummiring (SBR)	Gummiring (NBR)	Gummiring (EPDM)	Gummiring (TPE)	PE (Polyethylen)	PP (Polypropylen)
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Terpentin	●	○	●	○	●	▸	○
Tetrachlorkulstof	▸	○	○	○	○	○	○
Toluen	○	○		○	○	▸	▸
Trichlorethylen	○	○	○	○	○	▸	○

Udblæsningsgas (60°)	●	●	●	●	●	●	●
Urin	●	●	●	●	●	▸	●

Vand	●	●	●	●	●	●	●
Vanddamp (120°)	○	○	○	○	○	○	○

Vin	●	●	●	●	●	●	●
Vineddike	●	○	●	●	●	●	●

Vinsyre	●	▸	●	●	●	●	●
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Xylen (xylo)	○	○	○	○	○	▸	▸
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Zinkklorid	●	●	●	●	●	●	●
Zinksulfat	●	●	●	●	●	●	●

Æblesyre	●	▸	●	●	●	●	●
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Øl	●	●	●	●	●	●	●
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For PE, PP og PVC til gravitationsledninger er maksimale temperatur 60° C. Kortvarigt (under 2 minutter) kan rørene belastes med 100° C væske, hvis væskestrømmen er mindre end 30 l/min.

For PE til trykledninger er den højeste tilladelige temperatur 40° C og for PVC 45° C. Det tilladelige driftstryk skal aflæses i Uponor Teknisk Håndbog.

**Moving**  
**> Forward**

**uponor**

**Uponor Infra A/S**

Bødkervej 5  
4450 Jyderup  
Danmark

**T** +45 46 40 53 11

**W** [www.uponor.dk/infra](http://www.uponor.dk/infra)

**E** [infra.dk@uponor.com](mailto:infra.dk@uponor.com)