



ABBREVIAZIONI, TEMPERATURE E RESISTENZE CHIMICHE DELLE MATERIE PLASTICHE

La tabella seguente elenca le abbreviazioni delle materie plastiche più comunemente usate per la fabbricazione dei prodotti da laboratorio.

ABBREVIATIONS, TEMPERATURE AND CHEMICAL RESISTANCE OF PLASTICS

The table below lists commonly used abbreviations for plastics. This list covers plastics commonly employed in the manufacture of plastic laboratory ware.

ABBREVIATIONS, TEMPERATURES ET RESISTANCES CHIMIQUES DES MATIERES PLASTIQUES

Le tableau suivant comprend les abréviations plus communes des matières plastiques dans le domaine de la production des articles pour laboratoire.

Le temperature tra parentesi rappresentano i limiti tollerati solo per brevi periodi di tempo.

Temperatures appearing in parentheses: limits tolerated for intervals only.

Les températures entre parenthèses représentent les limites des résistances pendant périodes de temps brefs.

Abbreviazioni DIN-Abbrev. Abréviations	Denominazione Chimica Chemical Designation Dénomination chimique	Campo di Temperature comunemente tollerato Tolerated Temperature Range in Normal Use Résistance Températures pour utilisation normale	
		da/from/de	a/to/à
ABS	Acrilobutadiene-stirene cop. <i>Acrylobutadiene-styrene copolymer</i> <i>Copolymère Acrylonitrile Butadiène Styrene</i>	- 40°C	+ 85 (100)°C
HDPE	Polietilene Alta Densità <i>High-density polyethylene</i> <i>Polyéthylène Haute Densité</i>	- 50°C	+ 80 (120)°C
LDPE	Polietilene Bassa Densità <i>Low-density polyethylene</i> <i>Polyéthylène Basse Densité</i>	- 50°C	+ 75 (90)°C
PA	Poliamide (PA6) <i>Polyamide (PA6)</i> <i>Polyamide (PA6)</i>	- 30°C	+ 80 (140)°C
PC	Policarbonato <i>Polycarbonate</i> <i>Polycarbonate</i>	-100 °C	+135 (140)°C
PE	Polietilene (HDPE/LDPE) <i>Polyethylene (cf. HDPE/LDPE)</i> <i>Polyéthylène (HDPE/LDPE)</i>	- 40°C	+ 80 (90)°C
PMP (TPX®)	Polimetilpentene <i>Polymethylpentene</i> <i>Polyméthylpentène</i>	0°C	+120 (180)°C ?
PMMA	Polimetilmetacrilato <i>Polymethylmethacrylate</i> <i>Polyméthacrylate</i>	- 40°C	+ 85 (90)°C
POM	Poliossimetilene <i>Polyoxymethylene</i> <i>Polyoxyméthylène</i>	- 40°C	+ 90 (110)°C
PP	Polipropilene <i>Polypropylene</i> <i>Polypropylène</i>	- 10°C	+120 (140)°C ?
PS	Polistirene <i>Polystyrene</i> <i>Polystyrène</i>	- 10°C	+ 70 (80)°C
SAN	Stirene-Acilonitrile <i>Styrene-acrylonitrile</i> <i>Styrene-acrylonitrile</i>	- 20°C	+ 85 (95)°C
SI	Gomma Silicone <i>Silicone rubber</i> <i>Gomme Silicone</i>	- 50°C	+180 (250)°C
PVDF	Fluoruro di Polivinilidene <i>Polyvinylidene fluoride</i> <i>Polyvinylidènefluoride</i>	- 40°C	+105 (150)°C
PTFE	Politetrafluoroetilene <i>Polytetrafluoroethylene</i> <i>Polytetrafluoréthylène</i>	- 200°C	+ 260°C
E-CTFE	Etilene-Clorotrifluoroetilene <i>Ethylene-Chlorotrifluoroethylene</i> <i>Ethylène-Chlorotrifluoréthylène</i>	- 76°C	+150 (170)°C
ETFE	Etilene-Tetrafluoroetilene <i>Ethylene-tetrafluoroethylene</i> <i>Ethylène-Tetrafluoréthylène</i>	- 100°C	+ 150 (180)°C
PFA	Perfluoroalcolossido <i>Perfluoroalkoxy</i> <i>Perfluoroalkoxy</i>	- 200°C	+ 260°
FEP	Tetrafluoroetilene-Perfluoropropilene <i>Tetrafluoroethylene-perfluoropropylene</i> <i>Tetrafluoréthylène-Perfluoropropylène</i>	- 200°C	+ 205°C
PVC	Cloruro di Polivinile <i>Polyvinylchloride</i> <i>Polyvinylchloride</i>	- 20°C	+ 80°C

RESISTENZE CHIMICHE DELLE MATERIE PLASTICHE PER TIPOLOGIE DI PRODOTTI CHIMICI

LIST OF PLASTICS AND THEIR CHEMICAL RESISTANCES TO SUBSTANCE GROUPS

RESISTANCES CHIMIQUES DES MATIERES PLASTIQUES PAR TIPOLOGIES DES PRODUITS CHIMIQUES

- Resistenza elevata
 - Resistenza buona; nessun o minimo attacco per un'esposizione di oltre 30 giorni
 - Resistenza scarsa; un'esposizione prolungata può causare danni ad alcuni tipi di plastica
 - Resistenza nulla; il contatto può causare deformazioni o forte degrado del materiale
-
- High resistance.
 - Good resistance; no, or only minor, damage resulting from exposures of more than 30 days
 - Marginal resistance; for some types of plastics, extended exposure can result in damage (hairline cracks, loss of mechanical strength, discolouration, etc.)
 - Non resistant; exposure can lead to deformation or destruction.
-
- Résistance excellent.
 - Bonne résistance; aucun ou attaque minimale après 30 jours d'exposition
 - Résistance insuffisant; l'exposition prolongée peut provoquer des dégâts à certains types de plastique
 - Résistance nulle; le contact peut provoquer déformations ou graves dommages à la matière.

Tipologie di prodotti chimici
Substance Group, at +20°C
Typologies des substances
chimiques

	LDPE	HDPE	PP	PMP TPX®	PTFE FEP PFA	ECTFE ETFE	PA	PA
Alcoli alifatici <i>Alcohols aliphatic</i> <i>Alcools aliphatiques</i>	●	●	●	●	●	●	●	●
Aldeidi <i>Aldehydes</i> <i>Aldehydes</i>	●	●	●	●	●	●	●	●
Alkali <i>Alkalis</i> <i>Alkalis</i>	●	●	●	●	●	●	●	●
Esteri <i>Esters</i> <i>Esters</i>	●	●	●	●	●	●	●	●
Idrocarburi alifatici, <i>Hydrocarbons, aliphatic</i> <i>Hydrocarbures aliphatiques</i>	●	●	●	●	●	●	●	●
Idrocarburi aromatici <i>Hydrocarbons, aromatic</i> <i>Hydrocarbures aromatiques</i>	●	●	●	●	●	●	●	●
Idrocarburi alogenati <i>Hydrocarbons, halogenated</i> <i>Hydrocarbures halogenes</i>	●	●	●	●	●	●	●	●
Ketoni <i>Ketones</i> <i>Ketons</i>	●	●	●	●	●	●	●	●
Ossidanti (acidi) forti <i>Oxidants (oxidizing acids), strong</i> <i>Oxydants (Acides oxydants) forts</i>	●	●	●	●	●	●	●	●
Acidi deboli diluiti <i>Acids, diluted, weak</i> <i>Acides dilués, faibles</i>	●	●	●	●	●	●	●	●
Acidi forti concentrati <i>Acids, conc., strong</i> <i>Acides concentrés, forts</i>	●	●	●	●	●	●	●	●

PLASTICHE "PULITE" ED ECOLOGICHE

L'innovazione tecnologica ed il progressivo adeguamento ai più elevati standard di eco-compatibilità, ha reso i materiali plastici primari utilizzati da Kartell Labware all'avanguardia. Infatti i materiali plastici utilizzati godono di numerose compatibilità; di seguito ricordiamo alcune delle conformità possedute, in relazione alle loro caratteristiche.

- Idoneità al contatto con Alimenti (Direttiva Nazionale ed Europea)
- Idoneità al contatto con alimenti (FDA Directive)
- Assenza o limitazione secondo le Direttive Internazionali di: metalli pesanti, bifenili e ftalati
- Idoneità alle Direttive RoHS
- Idoneità alle Direttive relative alla BSE e/o TSE
- Idoneità alle Direttive Atex

Kartell Labware promuove la ricerca nel campo dei materiali plastici, attraverso il contatto diretto con i più affermati Produttori Mondiali e la ricerca di materiali innovativi. Ricordiamo che le plastiche Kartell Labware, se non chimicamente contaminate, sono totalmente riciclabili.

"CLEAN" AND ECOLOGICAL PLASTICS

Thanks to technological innovation and progressive adaptation to the most elevated eco-compatibility standards, Kartell plastic raw material are of excellent quality. In fact the used plastic materials grant wide compatibilities; hereunder you can find some standards conformities related to their characteristics.

- Foodstuff contact suitable (National and European Directive)
- Foodstuff contact suitable (FDA Directive)
- Absence or limitation according the International Directives of: heavy metals, biphenyls and phthalates
- RoHS Directives Conformity
- BSE and/or TSE Directives Conformity
- Atex Directives Conformity

Kartell Labware promotes the research in the field of the plastic materials, through the direct contact with the most important worldwide raw materials manufacturers and the research of innovative materials. We would like to underline that Kartell Labware materials, if not chemically contaminated, are totally recyclable.

PLASTIQUE "PROPRE" ET ECOLOGIQUE

L'innovation technologique et la progressive adaptation aux plus élevés standards d'éco-compatibilité, a rendu les matières premières plastiques utilisées par Kartell Labware à l'avant-garde. En effet les matières plastiques utilisées garantissent de nombreuses compatibilités; ci-dessous quelques conformités aux normes internationales liées à leurs caractéristiques

- Conformité au contact alimentaire (Directives Nationales et Européens)
- Conformité au contact alimentaire (Directives FDA)
- Absence or limitation selon les normes internationales de: métaux lourds, biphenyles and phthalates
- Conformité aux Directives RoHS
- Conformité aux Directives BSE et/ou TSE -
- Conformités aux Directives Atex

Kartell Labware promeut la recherche dans le champ des matières plastiques, à travers le contacte directe avec les Producteurs plus affirmés dans le monde et la recherche de matières nouvelles. Nous voudrions souligner que les matières plastiques Kartell, non chimiquement contaminées, sont totalement recyclables

Resistenza chimica
Chemical resistance
Résistance chimique

	PS		SAN		PMMA		PC		PVC		POM		PE-LD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Acetaldehyde	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetic acid 50%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetic acid (glacial) 100%	●	●												
Acetic anhydride	●	●												
Acetone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetonitrile	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetophenone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetylacetone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acetylchloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acrylic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Acrylonitrile	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Adipic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Allyl alcohol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aluminium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aluminium hydroxide	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Amino acids	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ammonium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ammonium fluoride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ammonium hydroxide 30%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ammonium sulphate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
n-Amyl acetate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
n-Amyl alcohol (Pentanol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Amyl chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aniline	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Aqua regia	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Barium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzaldehyde	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzene (Benzol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzine (gasoline)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzoyl chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzyl alcohol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzyl chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Benzylamine	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Boric acid, 10%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bromide	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bromobenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bromoform	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bromonaphthalene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Butanediol	●	●	●	●							●	●	●	●
1-Butanol (Butyl alcohol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
n-Butyl acetate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Butylamine	●	●	●	●							●	●	●	●
Butyl methyl ether	●	●	●	●							●	●	●	●
Butyric acid	●	●	●	●							●	●	●	●
Calcium carbonate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Calcium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Calcium hydroxid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Calcium hypochlorite	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Carbon disulphide	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Carbon tetrachloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chloro naphthalene											●	●		
Chloroacetaldehyd	●	●	●	●	●	●								
Chloroacetic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chloroacetone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chlorobenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chlorobutane	●	●	●	●	●	●								
Chloroform	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chlorosulfonic acid											●	●		
Chromic acid 10%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chromic acid 50%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chromosulphuric acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Copper sulfate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cresol	●	●												

Legenda: ● Resistenza chimica: eccellente ● Resistenza chimica: da buona a limitata ● Resistenza chimica: insufficiente
 ● *Chemical resistance: excellent* ● *Chemical resistance: between good and limited* ● *Chemical resistance: poor*
 ● *Résistance chimique: excellent* ● *Résistance chimique: entre bonne et suffisant* ● *Résistance chimique: pauvre*

Resistenza chimica
 Chemical resistance
 Résistance chimique

	PS		SAN		PMMA		PC		PVC		POM		PE-LD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Cumene (Isopropyl benzene)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cyclohexane	●	●					●	●	●	●	●	●	●	●
Cyclohexanone	●	●					●	●	●	●			●	●
Cyclopentane	●	●					●	●	●	●			●	●
Decane							●		●		●			
Decanol	●		●				●		●		●			
Dibenzyl ether	●	●	●	●	●	●					●			
Dibromoethane														
Dibutyl phthalate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dichlorobenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dichloromethane (Methylene chloride)	●	●					●	●	●	●			●	●
Dichloroacetic acid	●	●					●	●	●	●			●	●
Dichloroethane	●	●												
Diesel oil	●	●	●	●	●	●	●	●	●		●	●	●	●
Diethanolamine	●	●	●	●	●	●	●	●						
Diethyl ether	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Diethylamine	●	●					●	●	●	●			●	●
Diethylbenzene	●	●					●	●	●	●			●	●
Diethylene glycol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dimethylaniline	●	●	●	●	●	●	●	●						
Dimethylformamide (DMF)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Dimethyl sulfoxide (DMSO)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.4 Dioxane	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Diphenyl ether	●	●	●	●	●	●					●	●		
Ethanol (Ethyl alcohol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethanolamine														
Ethyl acetate	●	●					●	●	●	●			●	●
Ethyl methyl ketone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethylbenzene	●	●	●	●	●	●	●	●	●	●			●	●
Ethylene chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethylene glycol (Glycol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ethylene oxide	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fluoroacetic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Formaldehyde 40%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Formamide														
Formic acid 98 - 100%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Glycerol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Glycolic acid 70%														
Heating oil	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heptane	●	●			●	●	●	●	●	●			●	●
Hexane	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hexanoic acid														
Hexanol														
Hydriodic acid														
Hydrobromic acid	●	●					●	●			●	●	●	●
Hydrochloric acid 10%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydrochloric acid 20%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydrochloric acid 37%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydrofluoric acid 40%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydrofluoric acid 70%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hydrogen peroxide 35%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Iodine/potassium iodine solution	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Iso Octane	●	●	●	●			●							
Isoamyl alcohol														
Isobutanol (Isobutyl alcohol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Isopropanol (2- Propanol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Isopropyl ether	●	●					●	●	●	●			●	●
Lactic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mercury	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mercury chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Methanol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Methoxybenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Methyl butyl ether	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Legenda: ● Resistenza chimica: eccellente ● Resistenza chimica: da buona a limitata ● Resistenza chimica: insufficiente
 ● Chemical resistance: excellent ● Chemical resistance: between good and limited ● Chemical resistance: poor
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Resistenza chimica
Chemical resistance
Résistance chimique

	PS		SAN		PMMA		PC		PVC		POM		PE-LD	
	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
Methyl formate	●	●	●	●	●	●	●	●			●			
Methyl propyl ketone	●	●	●	●	●	●	●	●		●	●		●	●
Methylene chloride (Dichloro methane)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mineral oil (Engine oil)	●		●		●	●	●		●	●	●	●	●	●
Monochloroacetic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nitric acid 10%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nitric acid 30%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nitric acid 70%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nitrobenzene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oleic acid	●	●	●	●	●	●								
Oxalic acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ozone	●	●	●	●	●	●	●	●	●	●	●	●	●	●
n-Pentane														
Peracetic acid							●	●			●	●		
Perchloric acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Perchloroethylene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Petroleum	●	●			●		●	●	●	●	●	●	●	●
Petroleum ether	●	●			●				●	●	●	●	●	●
Phenol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Phenylethanol														
Phenylhydrazine														
Phosphoric acid 85%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Piperidine														
Potassium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Potassium dichromate														
Potassium hydroxide	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Potassium permanganate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Propanediol (Propylene glycol)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Propanol	●		●		●		●		●	●	●	●	●	●
Propionic acid	●	●					●	●	●	●	●	●	●	●
Pyridine	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Salicylic acid	●	●	●	●					●	●	●	●	●	●
Salicylaldehyde	●	●	●	●			●	●	●	●	●	●	●	●
Silver acetate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Silver nitrate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sodium acetate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sodium chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sodium dichromate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sodium fluoride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sodium hydroxide	●	●	●	●			●	●	●	●	●	●	●	●
Sulphuric acid 60%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sulphuric acid 98%	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Tartaric acid	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Tetrachloroethylene														
Tetrahydrofuran	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Tetramethylammonium hydroxide														
Toluene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trichloroacetic acid	●	●					●	●	●	●	●	●	●	●
Trichlorobenzene	●	●					●	●	●	●	●	●	●	●
Trichloroethane	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trichloroethylene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trichlorotrifluoro ethane	●	●	●	●										
Triethanolamine	●	●	●	●										
Triethylene glycol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Trifluoro ethane	●	●	●	●										
Trifluoroacetic acid (TFA)	●	●	●	●							●	●		
Tripropylene glycol	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Turpentine	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Urea	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Xylene	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Zinc chloride	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Zinc sulphate	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Legenda: ● Resistenza chimica: eccellente ● Resistenza chimica: da buona a limitata ● Resistenza chimica: insufficiente
 ● *Chemical resistance: excellent* ● *Chemical resistance: between good and limited* ● *Chemical resistance: poor*
 ● *Résistance chimique: excellent* ● *Résistance chimique: entre bonne et suffisant* ● *Résistance chimique: pauvre*

I dati relativi alla resistenza chimica dei sali si applicano anche alle loro soluzioni acquose.
 The data for the chemical resistance of salts also apply to their aqueous solutions.
 Les données pour la résistance chimique des sels s'appliquent également à leurs solutés.

PE-HD		PP		PMP		ECTFE/ETFE		PTFE		FEP/PFA		FKM		EPDM		NR		SI	
20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C	20°C	50°C
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Legenda: ● Resistenza chimica: eccellente
 ● Chemical resistance: excellent
 ● Résistance chimique: excellent

● Resistenza chimica: da buona a limitata
 ● Chemical resistance: between good and limited
 ● Résistance chimique: entre bonne et suffisant

● Resistenza chimica: insufficiente
 ● Chemical resistance: poor
 ● Résistance chimique: pauvre

STERILIZZAZIONE DEI PRODOTTI IN PLASTICA DA LABORATORIO

Prima di sterilizzare qualsiasi articolo verificare che non contenga alcun residuo o tracce di contaminanti, poiché la loro presenza potrebbe danneggiare la plastica durante le operazioni di sterilizzazione o autoclavaggio.

Si raccomanda di togliere qualsiasi tappo, accessorio o coperchio dagli articoli in plastica prima di autoclavarli; i contenitori devono essere autoclavati separatamente dai propri tappi o coperchi di chiusura altrimenti si corre il rischio di causare deformazioni e danneggiamento del contenitore.

Tutte le notizie tecniche riportate sono indicative e non implicano alcuna responsabilità da parte di Kartell. Tutte le notizie relative alle resistenze delle materie plastiche alle alte temperature, alla sterilizzazione e ai trattamenti di lavaggio sono state formulate basandosi sui bollettini dei produttori di materie plastiche, sui dati pubblicati in letteratura e sull'esperienza acquisita nell'uso dei prodotti.

STERILISING PLASTIC LABORATORY WARE

Before sterilising any items of plastic laboratory ware, verify that no contamination or residues are present. Their presence could destroy plastics during sterilisation or autoclaving.

Observe the tolerated temperature ranges of plastic when autoclaving plastic laboratory ware. Remove any stoppers, fittings, or caps from plastic laboratory ware prior to autoclaving. Plastic vessels should be autoclaved separately from their closures and other fitting. Autoclaving vessels with their closures in place can lead to deformation and destruction of the vessels.

All statements are advisory only, and imply no liability on the part of Kartell. All statements relating to the resistances of plastic laboratory ware to high temperatures, chemicals, and to sterilisation and cleaning procedures have been cautiously formulated, based on statements of raw material manufacturers, on statements appearing in the literature, plus experience gained in actual practice.

STERILISATION DES PRODUITS EN PLASTIQUE POUR LABORATOIRE

Avant de stériliser un article, il faut vérifier qu'il ne contienne pas de résidus ou traces de contaminants, car leur présence pourrait abîmer le plastique pendant les opérations de stérilisation ou autoclavage.

Il est conseillé d'enlever tout, bouchon, accessoire ou couvercle des articles en plastique avant de les autoclaver; les récipients doivent être autoclavés séparément de leurs bouchons ou couvercles pour éviter le risque de déformations ou graves dommages.

Toutes les informations techniques mentionnées sont indicatives et n'impliquent aucune responsabilité de la part de Kartell. Toutes les informations concernant les résistances des matières plastiques aux hautes températures à la stérilisation et aux traitements de lavage, ont été formulées sur la base des fiches des producteurs de matières plastiques, sur les données publiées en littérature et sur l'expérience acquise avec l'utilisation des produits.

Materia	Autoclavabilità	Ster. con gas (Oss. Etilene)	Ster. Secco a +160°C	Ster. Chim. (in Formal.)	Radiaz. gamma	Microonde
Plastics	Autoclavable	Gas Sterilisable (Ethylene Oxide)	Dry Sterilisable at 160°C	Chemically Sterilisable (in Formalin)	Sterilizable by Gamma radiation	Microwaves
Matière première	Autocl.	Stér. avec gas (Oxyde Ethylène)	Stér. à sec Stér. 160°C	Chim. (en Formal.)	Radiations Gamma	Micro-onde
ABS	no/no/no	si/yes/oui	no/no/no	si/yes/oui	si/yes/oui	no/no/no
HDPE	no/no/no	si/yes/oui	no/no/no	si/yes/oui	si/yes/oui	si/yes/oui
LDPE	no/no/no	si/yes/oui	no/no/no	si/yes/oui	si/yes/oui	si/yes/oui
PC	si/yes/oui*	si/yes/oui	no/no/no	si/yes/oui	si/yes/oui	si/yes/oui
PFA/FEP	si/yes/oui	si/yes/oui	si/yes/oui	si/yes/oui	no/no/no	si/yes/oui
PMP (TPX)	si/yes/oui	si/yes/oui	si/yes/oui	si/yes/oui	no/no/no	si/yes/oui
PP	si/yes/oui	si/yes/oui	no/no/no	si/yes/oui	no/no/no	si/yes/oui
PS	no/no/no	si/yes/oui	no/no/no	si/yes/oui	si/yes/oui	no/no/no
PTFE	si/yes/oui	si/yes/oui	si/yes/oui	si/yes/oui	no/no/no	si/yes/oui
ETFE/E-CTFE	si/yes/oui	si/yes/oui	si/yes/oui	si/yes/oui	no/no/no	si/yes/oui
PVC	no/no/no	si/yes/oui	no/no/no	si/yes/oui	no/no/no	si/yes/oui

*Autoclavabile a +121°C per un periodo di 20 minuti.

*Autoclavable at 121°C for a period of 20 minutes.

*Autoclavable à 121°C pendant 20 minutes.

LAVAGGIO DEGLI ARTICOLI IN PLASTICA DA LABORATORIO

Tutte le poliolefine, quali LDPE, HDPE, PP e PMP (TPX*), come pure le resine fluorurate PTFE, PFA, FEP, ETFE e E-CTFE hanno superfici bagnabili che sono molto resistenti sia alle alte temperature che agli attacchi chimici e quindi facili da lavare. Una leggera contaminazione può essere eliminata mediante lavaggio con detergenti neutri (pH 7). Contaminazioni più consistenti possono essere eliminate mediante l'uso di detergenti alcalini (pH fino a 12).

Raccomandiamo l'uso dei detergenti Kartell Cleanilab LM1, LM2 e LA2. Si raccomanda di usare solo detergenti neutri (pH7) con articoli in Policarbonato (PC) o Polistirene (PS).

Gli articoli da laboratorio usati per analisi di tracce devono essere lavati con una soluzione di Acido Cloridrico (HCl) 1-N per un massimo di 6 ore e poi risciacquati con acqua distillata per impedire una contaminazione da cationi o anioni.

Nella pulizia degli articoli in plastica da laboratorio evitare sempre l'uso di polveri o spugne abrasive e non usare mai detergenti alcalini con oggetti di Policarbonato.

CLEANING PLASTIC LABORATORY WARE

All polyolefins, such as LDPE, HDPE, PP and PMP (TPX*), as well as the fluorinated hydrocarbons PTFE, PFA, FEP, ETFE and E-CTFE, have wettable surfaces that are both highly resistant to high temperatures and chemical attack and easy to clean. Slight contamination can be removed using a chemically neutral (pH 7) cleaning agent. Heavy contamination can be removed using an alkaline (pH up to 12) cleaning agent.

We recommend the use of Kartell Cleanilab LM1, LM2 and LA2 cleaning agents. Use only chemically neutral (pH7) cleaning agents on polycarbonate (PC) or polystyrene (PS).

Laboratory ware used in trace analyses should be cleaned in a 1-N hydrochloric acid (HCl) solution for periods of not more than 6 hours and then rinsed in distilled water in order to preclude contamination by cations or anions.

Never use scouring powders or abrasive sponges when cleaning plastic laboratory ware. Use no alkaline cleaning agents on polycarbonate (PC) laboratory ware.

NETTOYAGE DES ARTICLES EN PLASTIQUE DE LABORATOIRE

Toutes les résines polyoléfiniques comme LDPE, HDPE, PP et PMP (TPX*), et aussi les résines fluorées comme PTFE, PFA, FEP, ETFE et E-CTFE ont des surfaces à laver qui sont très résistantes soit aux hautes températures que aux attaques chimiques, donc très faciles à nettoyer. Une contamination légère peut être éliminée grace au lavage avec détergents neutres (pH 7). Contaminations plus graves peuvent être éliminées avec l'utilisation de détergents alcalins (pH jusqu'à 12).

Il est recommandé d'utiliser les détergents Kartell Cleanilab LM1, LM2 et LA2. Avec des articles en Polycarbonate (PC) et Polystyrène (PS) il est conseillé d'utiliser seulement des détergents neutres (pH7).

Les articles de laboratoire utilisés pour analyses de traces doivent être lavés avec une solution d'acide chloridrique (HCl) 1-N pendant 6 heures max. et après rincés avec de l'eau distillée pour empêcher la contamination des cations et anions.

Pendant le nettoyage des produits de laboratoire en plastique il faut toujours éviter l'utilisation de poudres ou éponges abrasives et jamais laver les objets en Polycarbonate avec des détergents alcalins.