



RAU-PP POLYPROPYLENE

MATERIAL DATA SHEET AV 0030 EN

Chemical structure

RAU-PP is manufactured from propylene with the aid of stereospecific catalysts using the low pressure process.

Characteristic properties

Because of the closely ordered three-dimensional structure of the macromolecules, the solid isotactic polymer is distinguished by a crystalline texture.

This produces the good physical properties and the high melting point of the material. With its very low specific density of 0.90, polypropylene is one of the lightest polymers of the thermoplastics group.

Thermal properties

(see also Table 1)

As with all thermoplastics, the physical properties are dependent on temperature. For technical applications, the upper limit lies at approximately 135 °C.

a) Heat resistance

RAU-PP is resistant to permanent service temperatures of 100 °C. Products made from the material are absolutely resistant to boiling and can be sterilized at temperatures above 120 °C without risk of deformation. Suitable fillers can be added to improve the thermal stability. The melting range lies between 140- 165 °C.

b) Resistance to cold

RAU-PP is resistant to temperatures down to 0 °C. It starts to become brittle at temperatures below 0 °C. This should be taken into consideration when impact, flexing or shock stresses may arise at low temperatures. RAU-PP versions with lower crystallinity possess greater resistance to impact at low temperatures down to -40 °C.

Mechanical properties

(see also Table 2)

In addition to its low specific weight, RAU-PP is distinguished from PE types by its greater hardness and rigidity. The toughness and abrasion resistance of RAU-PP are also higher.

It cannot be scratched with a finger nail, has a good surface gloss, can be nailed, screwed, drilled, turned, planed, milled and sawn.

Electrical properties

(see also Table 3)

The low dielectric loss factor, the low dielectric constant and the high dielectric strength make RAU-PP suitable for use in high-frequency engineering and in the cable industry. Because of the high surface resistance of 10^{13} ohms, articles made of this material become electrostatically charged very easily.

Chemical resistance

(see Table 4)

Weathering and ageing resistance

RAU-PP that contains no substances other than those necessary for its manufacture is subject to decomposition when exposed to heat and light for long periods of time. This decomposition can however be considerably reduced by the incorporation of stabilizers, whereby the stabilization can be formulated to provide protection particularly against

either the damaging influence of light or oxidation caused by heat. The most suitable grade of RAU-PP should therefore always be selected on the basis of the intended application.

Combustibility

As a pure hydrocarbon, RAU-PP is combustible in a similar manner to high-melting waxes and paraffins. RAU-PP can be made self-extinguishing with the aid of additives.

Permeability to gas

RAU-PP is permeable to gases and vapours to a certain degree. The permeability depends on the particular chemicals and in particular on the molecular size and affinity to PP of these: The interrelationships are similar to those applying to resistance to chemicals: the less closely a substance is related to PP, the lower is the permeability to that substance. The permeability of PP to water vapour is very low.

Physiological behaviour

RAU-PP is physiologically inert and its composition conforms to Recommendation No. VII of the Bundesgesundheitsamt (Federal German Health Office) edition 1.4.1990 (Information 184, Bundesgesundheitsblatt 33 (1990) page 269). The material is virtually odourless and tasteless.

The use of certain stabilizing additives or finishes, such as antistatic and self-extinguishing finishes, stabilizers against the influence of copper and others mean that the product can no longer be guaranteed to be physiologically inert.

Colouring

Translucent and opaque colours can be produced in accordance with the type and quantity of the dyestuffs or pigments used.

Transparent colours cannot be produced as a result of the translucent colour of the base material itself.

The colour range is limited in the base of special formulations.

Bonding

PP can be bonded using various adhesive systems. In order to increase the surface tension, however, PP must be pretreated. This can be achieved by primer application, flame treatment, corona or plasma pretreatment. Printing is also possible.

Welding

As a result of its thermoplastic behaviour, components made from RAU-PP can be welded to each other with good results.

Field of application

Injection mouldings of RAU-PP are used in the automobile, textile, footwear, electrical, domestic appliance and packaging industries.

RAU-PP is particularly suitable for blow moulding and extrusion of pipes, solid rods, special sections, hollow items and wire sheathings for applications where temperatures exceeding 100 °C are anticipated. For special requirements, REHAU compounds may also be used.

			PP- homopolymer RAU-PP 1 xxx	PP- copolymer RAU-PP 2 xxx / 3 xxx	PP reinforced RAU-PP xx8x
Table 1: Thermal properties of RAU-PP					
Melting point	DSC	°C	155-165	140-160	140-165
Vicat B 50	DIN 53460	°C	70-90	50-70	70-105
Thermal conductivity, method A	DIN 52612	W/ (m*K)	0.17	0.17	0.2-0.3
Coefficient of linear thermal expansion	DIN 53752	K ⁻¹ (m*K)	1.8 * 10 ⁻⁴	1.8 * 10 ⁻⁴	0.2-1.0 * 10 ⁻⁴

Table 2: Mechanical properties of RAU-PP

Specific gravity	DIN 53479	g/cm ³	0.89-0.91	0.89-0.91	0.97-1.3
Tensile strength at yield	DIN 53455	MPa	28-35	20-28	25-35
Tensile strain at yield	DIN 53455	%	10-20	6-15	5-15
Ultimate tensile strength	DIN 53455	MPa	30-40	20-30	20-35
Elongation at break	DIN 53455	%	> 300	> 300	> 30
Modulus of elasticity (tensile)	DIN 53457	MPa	> 1100	> 800	> 2500
3,5 % bending stress	DIN 53452	MPa	> 33	> 20	> 50
Shear modulus	DIN 53445	MPa	> 400	> 300	> 1100
Impact strength 23 °C	DIN 53453	kJ/m ²	no break	no break	> 20
Impact strength, notched 23 °C	ISO 180	kJ/m ²	> 3	> 10	> 3
-30 °C			> 1.5	> 3	> 1.5
Ball indentation hardness	DIN ISO 2039	MPa	> 65	> 50	> 80
Shore hardness D	DIN 53505		70-75	65-70	70-80

Tab. 3: Electrical properties of RAU-PP

Surface resistance	DIN 53482	V	> 10 ¹³	> 10 ¹³	> 10 ¹³
Volume resistivity	DIN 53482	V* cm	> 10 ¹⁸	> 10 ¹⁸	> 10 ¹⁶
Dielectric constant	DIN 53483		2.3	2.3	2.4
Dielectric loss factor tg d	DIN 53483		5 * 10 ⁻⁴	5 * 10 ⁻⁴	7-20 * 10 ⁻⁴
Dielectric strength	DIN 53481	kV/mm	> 40	> 40	> 40

Table 4: Chemical resistance of RAU-PP

Agens	Concentration %	Resistance		
		20 °C	60 °C	100 °
Acetic acid	10	+	+	+
Acetic acid	30	+	+	
Acetic acid	50	+	+	
Acetic acid	70	+	+	
Acetic acid (glacial)	100	+	/	-
Acetic amyl ester	100	/	-	
Acetic anhydride	100	+		
Acetic butyl ester	100	/	-	
Acetic ethyl ester	100	+	+	
Acetic methyl ester	100	+	+	(b)
Acetone	100	+	+	(b)
Acetophenone	100	+	/	
Acrylo-nitrile	100	+		
Allyl alcohol	96	+	+	
Aluminium salts	aqu.any	+	+	+
Alums, all types of	aqu.any	+	+	
Ammonia (gaseous)	100	+	+	
Ammonia	aqu. 10	+	+	
Ammonia	aqu. 15	+		
Ammonia	aqu. 30	+	+	
Ammonium acetate	aqu.any	+	+	+
Ammonium carbonate	aqu.any	+	+	+
Ammonium chloride	aqu.any	+	+	+
Ammonium fluoride	aqu. to 20	+	+	
Ammonium nitrate	aqu.any	+	+	+
Ammonium phosphate	aqu.any	+	+	+
Ammonium sulfide	aqu.any	+	+	
Ammonium sulphate	aqu.any	+	+	+
Amyl acetate	100	/	-	
Amyl alcohol	100	+	+	+
Aniline	100	+	+	
Anisole		/	/	
Antifreezing agent		+	+	+
Antimony chloride	aqu. 90	+		
Apple juice		+	+	
Apple sauce		+	+	+
Aqua regia		+	-	
Arsenic acid	aqu. diluted	+	+	+
Asphalt		+	/	
Aspirin		+		
Barium salts	aqu. any	+	+	+
Battery acid, d = 1.28		+	+	
Beef suet	100	+	+	
Beer		+		
Benzaldehyde	100	+		
Benzaldehyde	aqu.cold sat.	+		
Benzene	100	/	-	
Benzene, bp 100-140 °C	100	/	-	
Benzene, crude	100	/	-	
Benzene, normal	100	/	-	
Benzene, super	100	/	-	
Benzene, test	100	/	-	
Benzoic acid	100	+	+	+
Benzoic acid	aqu.any	+	+	+
Benzoyl chloride	100	/		
Bisulphite lye containing SO2	aqu. warm sat.	+	+	
Bitter almond flavour		+		
Bleach lye, 12.5 % **) active chlorine		+	/	-
Bone oil		+	+	
Borax	aqu. cold sat.	+	+	+
Boric acid	100	+	+	+
Boric acid	aqu. cold sat.	+	+	+
Brake fluid*)	100	+		
Brandy		+		
Bromine vapours	high	-	-	
Bromine vapours	low	/	-	
Bromine water	cold sat.	-	-	-
Bromine, liquid	100	-		
Butane, gaseous	100	+	+	
Butane, liquid	100	+		
Butter		+	+	
Buttermilk		+		
Butyl acetate	100	/	-	-
Butyl glycol	100	+		
Butyl phenol	cold sat.	+		
Butyl phthalate	100	+	/	/
Calcium carbonate	aqu. cold sat.	+	+	+
Calcium chloride	aqu. 10	+	+	+
Calcium chloride	aqu. 50	+	+	+
Calcium chloride	aqu. cold sat.	+	+	+
Calcium nitrate	aqu. 50	+	+	
Camphor	100	+		
Carbon dioxide, dry	100	+	+	
Carbon dioxide, moist	each	+	+	
Carbon disulphide	100	+		
Carbon tetrachloride	100	-	-	
Caustic potash lye	25	+	+	+
Caustic potash lye	2n	+	+	+
Caustic potash lye	55	+	+	+
Cheese		+		
Chloride of lime, aqueous suspension		+	+	
Chlorine ethanol	100	+		
Chlorine water	cold sat.	/	-	
Chlorine, gaseous moist	10	/	-	-
Chlorine, gaseous dry	100	-	-	-
Chlorine, liquid	100	-		
Chloroacetic acid (mono)	100	+		
Chloroacetic acid (di)	100	+		
Chloroacetic acid (tri)	100	+	+	
Chlorobenzene	100	+		
Chloroform	100	/	-	-
Chlorosulphonic acid	100	-	-	-
Chromic acid**)	20	+	+	

Agens	Concentration %	Resistance		
		20 °C	60 °C	100 °
Chromic acid**)	50	+	+	
Chromic sulphuric acid		-	-	
Chromium salts (bivalent and trivalent)	aqu. cold sat.	+	+	
Chromium baths, technical**)		+	+	
Cinnamon		+		
Citric acid	aqu. any	+	+	+
@Coca-Cola		+		
Cocoa powder		+		
Cocoa, ready to drink		+	+	+
Coconut oil		+	+	
Cod liver oil		+		
Coffee (beans and ground)		+		
Coffee, instant		+	+	+
Cooking oil, animal	100	+	/	
Cooking oil, vegetable	100	+	/	
Copper salts	aqu. cold sat.	+	+	
Cottage cheese		+		
Cream		+		
Cresol solutions		+		
Cresols	100	+	/	
CY 3 (Shell machine oil)		+	/	-
Cyanuric chloride	100	+		
Cyclohexane	100	+		
Cyclohexanol	100	+	/	
Cyclohexanone	100	+	/	
Decahydronaphthalene	100	/	/	
Dextrine	aqu. cold sat.	+		
Dibutyl phthalate	100	+	/	/
Dibutylsebacate	100	+		
Dichloroethane	100	+		
Dichloroethylene	100	+		
Diesel oil	100	/		
Diethanolamine	100	+		
Diglycolic acid	aqu. 30	+	+	
Diglycolic acid	aqu. cold sat.	+		
Dihexyl phthalate	100	+		
Dimethylamine	100	+		
Dimethylformamide	100	+		
Dinonyl adipate	100	+		
Dinonyl phthalate	100	+		
Diocetyl adipate	100	+		
Diocetyl phthalate	100	+		
1.4-dioxane	100	/	/	-
Dishwashing liquids*)		+	+	+
DTE-light (Mobil turbine oil)		-	-	-
Dutch glue		+	+	
Engine oils (vehicle*)	100	+	/	-
Ephetine	aqu. 10	+	+	+
Ethyl acetate	100	+	+	
Ethyl alcohol	100	+		
Ethyl alcohol	96	+	+	+
Ethyl alcohol (fermentation mesh)	usual	+		
Ethyl alcohol + acetic acid (fermentation mesh)	usual	+		
Ethyl benzene	100	/	-	
Ethyl chloride	100	/		
Ethyl ether	100	+		
Ethylene chloride	100	/		
Ethylene glycol	100	+	+	+
Ethylene oxide	100	/	(b)	
2-ethyl-hexanol	100	+		
Fatty acids (C6)	100	+	+	
Fish (sour)		+	+	+
Fixing salt solution	any	+	+	
Floor polish*)	100	+	/	
Flour	100	+		
Formaldehyde	aqu. 10	+	+	
Formaldehyde	aqu. 30/40	+	+	
Formic acid	aqu. 2 n (approx. 9)		+	+
Formic acid	aqu. 50	+	/	
Formic acid	aqu. 85	+	/	
Formid acid	100	+	/	
@Frigen 113	100	-		
Fructose		+	+	+
Fruit juices		+	+	+
Fuel oils*)	100	+	/	
Furniture polish*)		+	/	-
Gin		+		
Glucose	aqu. cold sat.	+	+	
Glucose	aqu. cold sat.	+	+	+
Glycerine	100	+	+	+
Glycerine	aqu.any	+	+	+
Glycol	100	+	+	+
Glycol	any	+	+	+
Hexane	100	+	/	
Honey		+	+	
Horseradish sauce (ready for the table)		+		
Hydrazine sulphate	10	+	+	
Hydrochloric acid	10	+	+	+
Hydrochloric acid	36	+	+	+
Hydrofluoric acid	40	+	+	
Hydrofluoric acid	70	+		
Hydrogen bromide	conc.	+		
Hydrogen chloride, gaseous, dry and moist	any	+	+	
Hydrogen peroxide	10	+	+	
Hydrogen peroxide	30	+	/	
Hydrogen peroxide	4	+	+	
Hydrogen sulphide	aqu.any	+	+	
Hydrogen sulphide, dry	100	+	+	

Agens	Concentration %	Resistance		
		20 °C	60 °C	100 °
Hydroquinone	100	+		
Ink*)		+	+	
Iodine tincture	usual	+		
Iodine-potassium-iodine solution	50	+		
Iron salts	aqu. cold sat.	+	+	+
Isobutylaldehyde	100	/		
Isocetane	100	+	/	
Isopropanol	100	+	+	+
Isopropanol	aqu.any	+	+	
Jam		+	+	+
Jelly		+	+	+
Kerosene	100	/	/	-
Lactic acid	aqu. 10	+	+	+
Lactic acid	aqu. 20	+	+	+
Lactic acid	aqu. 50	+	+	
Lactic acid	aqu. 90	+	+	
@Lanolin		+	/	
Lard		+	+	/
Lead acetate	aqu. cold sat.	+	+	
Lemon flavour		+		
Lemon juice		+	+	
Lemon peel oil		+		
Lemonades		+		
Linseed oil	100	+	+	+
Liqueurs		+		
@Lysol		+	/	
Machine oil (Shell CY 3)	100	+	/	-
Magnesium salts	aqu. cold sat.	+	+	+
Maize germ oil	100	+	/	
Maleic acid	100	+	+	
Maleic acid	aqu. cold sat.	+	+	
Malic acid	aqu. cold sat.	+	+	
Margarine		+	+	
Mayonnaise		+		
Menthol	100	+		
Mercury	100	+	+	
Mercury salts	aqu. cold sat.	+	+	
Methanol	100	+	(b)	
Methanol	aqu. 50	+	+	
Methoxybutyl alcohol	100	+		
Methyl acetate	100	+	(b)	
Methyl ethyl ketone	100	+	/	
Methylamine	100	+		
Methylamine	aqu. 32	+		
Methylene chloride	100	/	(b)	
Milk		+	+	+
Milk dishes		+	+	+
Mineral oils (free of aromatics)	100	+	/	-
Mineral water		+	+	+
Molasses	usual	+	+	
Moth balls		+		
Mustard		+		
n-butanol	100	+	/	/
n-butyraldehyde	100	/		
n-heptane	100	+	/	
Nail varnish remover*)		+	/	
Nail varnish*)		+	/	
Naphtene-paraffin oil mixture 8.5° E.I.W.72	100	+	/	-
Naphthalene	100	+		
Nickel salts	aqu. cold sat.	+	+	
Nitric acid	50	/	-	
Nitric acid	68	-	-	
Nitric acid**)	up to 30	+	/	
Nitrobenzene	100	+	+	
Nitrose gases	conc.	+		
Oil No. 3 acc. to ASTM D 380-59	100	+	/	-
Oil of cloves		+	/	
Oleic acid	100	+	/	+
Oleum	any	-	-	-
Olive oil	100	+	+	+
Orange peel oil		+		
Oxalic acid	aqu. 30	+	+	+
Oxalic acid	aqu. 50	+	/	
Oxalic acid	aqu. cold sat.	+	/	
Ozone	50 pphm	+	/	
p-xyol	100	-	-	
Palm nut oil		+	/	
Paprika		+	+	
Paraffin	100	+	+	-
Paraffin oil	100	+	/	-
Paraffin oil mixture (Visc. (50 °C) 12-15° E.I.W. 98)		+	/	
Peanut oil	100	+	+	/
Pectin	aqu. cold sat.	+	+	
Pepper		+	+	
Peppermint oil		+		
Perchloric acid	aqu. 2 n	+	+	
Perchloroethylene	100	/	-	
Perfume		+		
Petroleum	100	+	/	
Petroleum ether	100	+	/	
Phenol	aqu. cold sat.	+	+	
Phenol	commercial	+	+	
Phosphoric acid	60	+	+	
Phosphoric acid	85	+	+	+
Phosphoric acid	up to 30	+	+	
Phosphorus pentoxide	100	+		
Photo developer	commercial	+	+	
Photo developer	ready for use	+		
Pine needle oil		+	+	

Agens	Concentration %	Resistance		
		20 °C	60 °C	100 °
Pine needle oil	100	+	+	
Pineapple juice		+	+	
Potassium bromate	aqu. cold sat.	+	+	+
Potassium bromide	aqu. cold sat.	+	+	+
Potassium carbonate	aqu. cold sat.	+	+	
Potassium chlorate	aqu. cold sat.	+	+	+
Potassium chloride	100	+	+	+
Potassium chromate	aqu. 40	+	+	+
Potassium cyanate	100	+		
Potassium cyanate	aqu. cold sat.	+	+	
Potassium dichromate	aqu. cold sat.	+	+	+
Potassium iodide	aqu. cold sat.	+	+	
Potassium nitrate	100	+	+	
Potassium nitrate	aqu. cold sat.	+	+	
Potassium permanganate	aqu. cold sat.	+	+	
Potassium persulphate	100	+		
Potassium persulphate	aqu.any	+	+	
Potassium sulphate	aqu. cold sat.	+	+	
Propane, gaseous	100	+	+	
Propane, liquid	100	+		
Pudding		+	+	+
Pyridine	100	/	/	
Quinine		+		
Roasting gas, dry	any	+	+	
Rum		+	+	
Rum flavour		+		
@Sagrotan		+	/	
Salted herrings		+		
Sauerkraut (ready to eat)		+	+	+
Sausage		+	+	
Sea water		+	+	+
Shampoo*)		+	+	
Shell-Dromus	aqu. 0.5	+	/	/
Shoe polish*)		+	/	
Silicone emulsion (TV-Bayer)		+	+	+
Silicone hydrofluoric acid	aqu. to 32	+		
Silicone oils	100	+	+	+
Silver nitrate	aqu. 20	+	+	+
Silver salts	aqu. cold sat.	+	+	
Soap (bars)		+	+	
Soap solution	any	+	+	
Soda lye	2 n	+	+	+
Soda lye	30	+	+	+
Soda lye	52	+	+	+
Soda water		+	+	
Sodium acetate	aqu. cold sat.	+	+	+
Sodium benzoate	aqu. cold sat.	+	+	
Sodium bicarbonate	aqu. cold sat.	+	+	+
Sodium bisulphite	aqu. cold sat.	+	+	
Sodium carbonate	aqu. 10	+	+	+
Sodium carbonate	aqu. cold. sat.	+	+	
Sodium chlorate	aqu. cold. sat.	+	+	
Sodium chloride	aqu. 10	+	+	+
Sodium chloride	aqu. 5	+		
Sodium chloride	aqu. any	+	+	
Sodium chloride	aqu. cold sat.	+	+	+
Sodium hydroxide	100	+	+	
Sodium hypochlorite**)	aqu. 10	+	+	
Sodium hypochlorite**)	aqu. 20	+	/	
Sodium hypochlorite**)	aqu. 6	+	+	+
Sodium nitrate	aqu. cold sat.	+	+	
Sodium nitrite	aqu. cold sat.	+		
Sodium palmitate	5	+	+	+
Sodium perborate	aqu. cold sat.	+	+	+
Sodium phosphate	aqu. cold sat.	+	+	+
Sodium sulphate (Glauber salt)	aqu. cold sat.	+	+	+
Sodium sulphide	aqu. cold sat.	+	+	
Sodium sulphite	aqu. 40	+	+	
Sodium sulphite	aqu. cold sat.	+	+	
Sodium thiosulphate	aqu. cold sat.	+	+	
Soft soap		+	+	
Soya bean oil	100	+	/	
Spindle oil (Shell)	100	+	-	
Stannous chloride	aqu. cold sat.	+	+	
Starch	100	+	+	
Starch solution		+	+	
Stearic acid	100	+	/	
Succinic acid	100	+	+	
Succinic acid	aqu. cold sat.	+	+	
Sugar beet syrup		+	+	+
Sugar solution	aqu.any	+	+	+
Sugar, dry	100	+	+	+
Sulphur	100	+	+	+
Sulphur dioxide	any	+	+	
Sulphuric acid	10	+	+	+
Sulphuric acid	50	+	+	
Sulphuric acid	85	+	/	
Sulphuric acid	98	/	-	
Tanning extracts, vegetable	usual	+		
Tanning extracts, from cellulose	usual	+		
Tar		+	/	
Tartaric acid	aqu. 10	+	+	
Tartaric acid	aqu. cold sat.	+	+	
Tea leaves		+	+	
Tea, instant		+	+	+
Tetrachloroethane	100	/	-	
Tetrachloroethylene	100	/	-	
Tetrahydrofuran	100	/	-	
Tetrahydronaphthalene	100	-	-	
Thionyl chloride	100	-	-	
Thiophene	100	/	-	
Toluene	100	+	/	
Tomato juice		+	+	

Agens	Concentration %	Resistance		
		20 °C	60 °C	100 °
Tomato ketchup		+	+	
Toothpastes		+	+	
Transformer oil	100	/	-	
Trichloroethylene	100	/	/	
Tricresyl phosphate	100	+	/	
Triethanolamine	100	+		
Trioctyl phosphate		+		
Turpentine	100	-	-	-
Urea	aqu. cold sat.	+	+	
Urine		+	+	
Vanilla		+	+	
Vaseline		+	/	
Vaseline oil		+	/	-
Vegetables		+	+	+
Water (potable, dist.)		+	+	+
Water glass		+	+	
Whisky		+		
Wine		+	+	
Yeast	aqu.any	+		
Zinc	aqu. cold sat.	+	+	

*) Depending on the composition

**) Does not apply to welded joints (including folded welds).
Information should be obtained from us or from the supplier of the semi-finished product.

Abbreviations:

cold. sat. = cold saturation
b = test result at boiling point
aqu. = aqueous solution

Resistance is designated as follows:

+ =
RAU-PP is resistant to the agent. Only a light swelling of less than 3 % or a loss in weight of less than 5 % occurs.
The ultimate tensile strength and elongation at break values change only minimally.

/ =
RAU-PP has only limited resistance to the agent. Swelling of 3 to 8 % can occur; loss in weight can reach 5 %.
Losses in ultimate tensile strength and elongation at break may not exceed 50 %. In critical cases, tests should be carried out to determine suitability.

- =
RAU-PP is not resistant to the agent. Swelling exceeds 8 %, or loss in weight exceeds 5 % and/or ultimate tensile strength and elongation at break are less than 50 % of unaffected material. In some cases the material can be used for short periods.

Possible discolourations caused by diffusion of the agents or resulting from chemical reaction of the PP-stabilizers with the agents - e.g. blackening through the use of a lead stabilizer in contact with an agent with sulphide base - were not taken into consideration.

If RAU-PP is used as a packaging material for substances with a strong odour, for instance perfume, it is possible that the odour will migrate or permeate.

Various types of RAU-PP using various stabilizers were examined on the basis of the Bell Telephone Test to ascertain stress corrosion performance. Even after very long test periods (1,000 days and longer) no cases of stress corrosion cracks were found.

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