Material Specification

PVCu

PVCu is used for the production of extrusions and mouldings and is universally accepted as having the most suitable properties for use within the electrical industry.

Standards and Approvals

All MK PVCu products are manufactured in accordance with the requirements of BS EN 50085 Series, BS 4678: Part 4, BS EN 61386 Series and BS 4662. The PVCu material used has been tested by an approved laboratory in accordance with the requirements of the following British Standards: BS 4607: Part 1, BS 476: Part 7. Copies of test certificates are available upon request. MK has been awarded ISO 9001: 2008 accreditation. The system complies with all relevant requirements of BS 7671: 2008.

CE marking

All relevant MK products in this brochure are CE marked, confirmation that they meet the EMC and LV directives.

Performance

Strength	Impact resistance normal climatic conditions, BS 4678: medium duty	High impact resistance under
	Charpy notched impact strength	25 kJ/m²
	Tensile strength at break	at yield 42.00 N/mm² 34.62 N/mm²

Fire performance

The PVC-U materials used in the manufacture of MK products are non-flame propagating in accordance with BS EN 61386, BS EN 50085 and BS 4678. Extrusion material has been tested by an accredited laboratory in accordance with the requirements of BS 476: part 7 and has achieved a Class 1Y classification. Moulding material has been tested by an accredited laboratory and conforms with IEC 695-2-1 at a severity of 650°C.

Thermal properties

All MK PVCu products are designed to accommodate local thermal expansion. Fitting instructions explain the procedure required to deal with the differential movement at the interface with the building fabric.

Coefficient of linear expansion	55 x 10^{-6}/°C (5mm/3000mm with a temperature rise of 25°C)
Operating temperatures	-5° to 60°C
Vicat softening point	81°C
Thermal conductivity	0.19w/mk

Chemical resistance

PVCu is non-corrosive and not affected by sea water. It has excellent resistance to mineral acids, alkalis and detergents, good resistance to alcohols, but liable to attack from solvents such as keytones, aromatics and hydrocarbons.

Electrical

PVCu is non-conductive.

Dielectric strength	40 kV/mm in DBP
	17 kV/mm in tx oil
Resistivity	1014 Ω ohm

Biological

Resistant to vermin and termites.

Workability

All MK PVCu products are lightweight and can be readily cut and drilled with hand tools. Short component lengths can be readily incorporated, reducing wastage of material. All covers and accessories are manufactured to fine tolerances to ensure a tight fit with ease of removal. Stop ends are secured to the carriers. For details, see the relevant installation guide.

Durability

All MK PVCu products are stable and will maintain their performance characteristics in accordance with the terms and conditions described above.

Maintenance

Clip-on covers with optional screw fix and interchangeable accessories provide continuous accessibility for rewiring, extensions and modifications to an installation. Covers and accessories can be cleaned with a damp cloth and household detergent. The surface can be decorated with commercial paints if required

Mechanical performance

Impact resistance at -5°C, BS EN 50085: medium duty for trunking, BS EN 61386 heavy or medium, where relevant for conduits.

Aluminium

Standards and approvals

The Prestige 3D Aluminium System is manufactured in accordance with the requirements of BS EN 50085-1:2005 and BS EN 50085-2-1:2006. 1, 2 & 3 Gang Boxes conforming to BS 4662 where applicable.

IEE Wiring Regulations

All products are designed and manufactured to allow installation to comply with all relevant requirements of the latest edition of BS 7671: 2008.

Quality Assurance

The system is manufactured to BS EN ISO 9001: 2008

Earth Continuity

The system makes provision for earth bonding where required in accordance with BS 7671: 2008.

When PVC cable trunking items are used that interrupt the earth continuity, Earth Kits (VP218 & VP219) are required to ensure continuity.

Impact Classification

Composite trunking systems (PVC / Al) will withstand "medium" impact to BS EN 50085. Metal components will withstand "heavy" impact as defined in BS EN 50085.

Thermal Properties

Min/Max installation and application temperature –5 to +60°C.

Coefficient of linear expansion 23 x 10-6 per°C.

1mm/m for 40 degree rise.

Maintenance

Resistant to staining. Wipe with soapy water (neutral 5/7 ph value).

Electrical Properties

Resistance to 0.03 ohm mm²/m.

Chemical Properties

Corrosion only occurs, to any extent, when ph value is less than 3 or greater than 9.

PVCu Chemical Resistance Table

The resistance of unplasticised PVC to a wide range of chemicals is listed in the table below.

The symbols used to denote performance are as follows:

- ▲ Satisfactory
- ● Some attack or absorption: the material may be considered for use when alternative materials are unsatisfactory and where limited life is acceptable. When PVC is to be used with such chemicals full scale trials under realistic conditions are necessary.
- ■ Unsatisfactory: so rated because of decomposition, solution, swelling, loss of ductility etc, of the samples tested.

For clarification and for details of resistance to other chemicals please call our Technical Hotline on +44 (0)1268 563720.

Note: to determine the suitability of PVCu for external applications we strongly advise you contact the MK Technical Sales and Service Department on +44 (0)1268 563720.

CHEMICAL	CONCENTRATION	UNPLASTICISED PVC 20°C	60°C
acetaldehyde	40% aq. solution	▲	■
acetic acid	60% aq. solution	▲	■
acetic anhydride		■	■
acetone	Traces	■	■
alcohol, ethyl	40% w/w water	▲	●
alcohol, isopropyl		▲	▲
alcohol, menthyl	6% aq. solution	▲	▲
	100%	▲	●
aliphatic hydrocarbons		▲	▲
aluminium chloride		▲	▲
aluminium hydroxide		▲	▲
ammonia	0,88S.G., aq. solution	▲	▲
	Anhydrous gas	■	■
	Anhydrous liquid	■	■
ammonium chloride		▲	▲
ammonium hydroxide		▲	▲
aniline		■	■
animal oils		▲	▲
aqua regia	Dilute	▲	▲
	Concentrated	▲	■
barium sulphate		▲	▲
beer		▲	
benzine		■	■
benzoyl chloride		■	■
borax		▲	▲
boric acid		▲	▲
brine		▲	▲
bromide	Traces, gas	●	■
	100% (dry gas)	■	■
	Liquid	■	■
calcium chloride	aq. solution	▲	▲
	20% in methyl alcohol	▲	
calcium hydroxide		▲	▲
calcium hypochlorite		▲	▲
carbon dioxide		▲	▲
carbonic acid		▲	▲
carbon monoxide		▲	▲
carbon tetrachloride		●	■
castor oil		▲	
chloric acid		▲	
chlorine	100% (dry gas)	▲	●
	10% (moist gas)	●	
chlorine water	Sat. solution	●	●
chloroform		■	■
chrome allum		▲	▲
chromic acid	Plating solution	▲	▲
cider		▲	
citric acid		▲	▲
copper chloride		▲	▲
copper cyanide		▲	▲
copper nitrate		▲	▲
copper sulphate		▲	▲
cupric sulphate		▲	▲
cyclohexanone		■	■
detergent, synthetic	All concentrations	▲	▲
developers, photographic		▲	▲
dextrin		▲	▲
dextrose		▲	▲
diazo salts		▲	▲
dichlorodifluoromethane		▲	
diethyl ether		■	■
emulsifiers	All concentrations	▲	▲
emulsions, photographic		▲	▲
ethyl acetate		■	■
ethylene glycol		▲	▲
ethylene oxide		■	■
fatty acids		▲	▲
ferric chloride		▲	▲
ferric nitrate		▲	▲
ferric sulphate		▲	▲
ferrous ammonium citrate		▲	▲
ferrous chloride		▲	▲
ferrous sulphate		▲	▲
fixing solution, photographic		▲	▲
fluorine		●	●
formaldehyde	40% w/w water	▲	▲
formic acid	50% solution	▲	▲
	100% solution	▲	■
fructose		▲	▲
fruit pulp		▲	▲
glucose		▲	▲
glycerol		▲	▲
grape sugar		▲	▲
heptane		▲	▲
hydrobromic acid	100%	▲	▲
hydrochloric acid	22% aq. solution	▲	▲
	Concentrated	▲	▲
hydrochloric acid	40% aq. solution	▲	●
	60% aq. solution	●	■
	Concentrated		
hydrogen bromide	Anhydrous	▲	▲
hydrogen chloride	Anhydrous	▲	▲
hydrogen flouride	Anhydrous	▲	▲
hydrogen peroxide	3% (10vol)	▲	▲
	12% (40vol)	▲	▲
	30% (100vol)	▲	▲
	90% and above	▲	
hydrogen sulphide		▲	▲
iodine	Solution in potassium iodine	■	■
lactic acid	10% aq. solution	▲	▲
	100%	●	●
lanoline		▲	▲
linoletic acid		▲	▲
linseed oil		▲	▲
magnesium hydroxide		▲	▲
maleic acid	50% aq. solution	▲	
	Concentrated	▲	●
metallic soaps (water soluble)		▲	▲
methyl bromide		■	■
methyl chloride		■	■
methyl cyclohexanone		■	■
methyl ethyl ketone		■	■
methyl isobutyl ketone		■	■
methylated spirit		▲	
methylene chloride		■	■
milk		▲	▲
mineral oil		▲	▲
mixed acids (sulphuric/nitric	Various proportions)	●	■
molasses		▲	▲
naphtha		▲	▲
naphtalene		■	■
nicotine		▲	▲
nitric acid	5% aq. solution	▲	
	50% aq. solution	▲	●
nitrobenzene		■	■
oleic acid		▲	▲
oxalic acid		▲	▲
oxygen		▲	▲
ozone		▲	▲
paraffin		▲	▲
pentane		▲	▲
petrol		▲	▲
phosphoric acid	30% aq. solution	▲	▲
	95% aq. solution	▲	▲
photographic developers		▲	▲
potassium bromide		▲	▲
potassium carbonate		▲	▲
potassium cyanide		▲	▲
potassium ferricyanide		▲	▲
potassium hydroxide			
	10% aq. solution	▲	▲
	Concentrated	▲	▲
potassium hypochlorite		▲	▲
potassium permanganate		▲	▲
propane		▲	▲
propylene glycol		▲	▲
propylene oxide		■	■
saccharose		▲	▲
sea water		▲	▲
silver nitrate		▲	▲
soap solution		▲	▲
sodium bicarbonate		▲	▲
sodium bisulphate		▲	▲
sodium borate		▲	▲
sodium bromide		▲	▲
sodium carbonate		▲	▲
sodium chlorate		▲	▲
sodium chloride		▲	▲
sodium cyanide		▲	▲
sodium ferricyanide		▲	▲
sodium ferrocyanide		▲	▲
sodium fluoride		▲	▲
sodium hydroxide	40% aq. solution	▲	▲
	Concentrated	▲	▲
sodium hypochlorite	15% Cl	▲	▲
sodium hyposulphate		▲	▲
sodium nitrate		▲	▲
sodium peroxide		▲	▲
sodium silicate		▲	▲
sodium sulphate		▲	▲
sodium sulphide	25% aq. solution	▲	▲
	Concentration	▲	▲
sodium sulphite		▲	▲
soft soap		▲	▲
surface active agents (All concentrations) (emulsifiers, synthetic detergents and wetting agents)		▲	▲
starch		▲	▲
stearic acid		▲	▲
sucrose		▲	▲
sulphur	Colloidal	▲	▲
sulphur dioxide	Dry	▲	▲
	Liquid	●	■
sulphuric acid	80% aq. solution	▲	▲
	90% aq. solution	▲	●
	Fuming	■	■
sulphurous acid	10% aq. solution	▲	▲
tallow		▲	▲
tanning extracts		▲	▲
tartaric acid		▲	▲
transformer oil		▲	▲
trichloroethane		■	■
trichloroethylene		■	■
turpentine		▲	▲
vegetable oils		▲	▲
vinegar		▲	▲
water		▲	▲
wetting agents	All concentrations	▲	▲
wines and spirits		▲	
xylene		■	■
zinc carbonate		▲	▲
zinc chloride		▲	▲
zinc sulphide		▲	▲