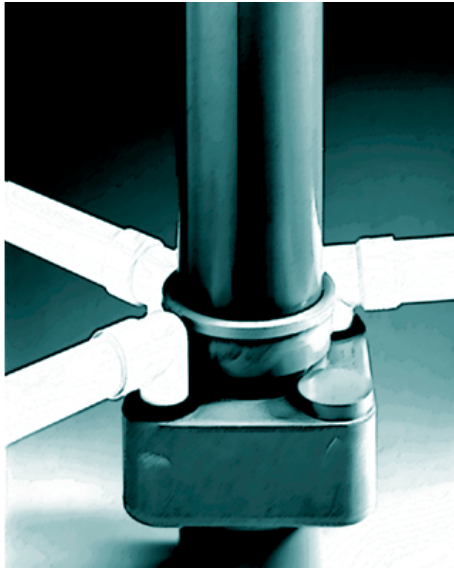


# 1.00

# PHYSICAL & MECHANICAL PROPERTIES

## Hunter Soil and Waste



- 1.01** Composition
- 1.02** Material Properties
- 1.03** Service Temperature
- 1.04** UV Light Resistance
- 1.05** Chemical Resistance
- 1.06** Timber Preservatives
- 1.07** Fire Performance
- 1.08** Thermal Expansion

# 1.00

## Physical and Mechanical Properties

### 1.01 COMPOSITION

Extruded pipe sections and injection moulded fittings are made from PVCu, MuPVC and polypropylene compounds which conform to the material requirements of the applicable British standards. They incorporate the necessary processing stabilisers, additives and pigments to give products with the most outstanding appearance, durability and performance.

### 1.02 MATERIAL PROPERTIES

Material properties determine the correct selection of a system. The main materials used are PVCu, modified PVCu and polypropylene. High Density Polyethylene (HDPE) is used in the manufacture of snap caps to retain the ring seals. Unplasticised polyvinyl chloride, PVCu, is a very versatile material: many processing methods can be used. It's lightweight, and has good chemical resistance, fire performance and weatherability. PVCu can be modified to increase its resistance to higher temperature discharges. Polypropylene has excellent chemical resistance and can tolerate high temperatures.

### 1.03 SERVICE TEMPERATURE

PVCu has a softening point in excess of 70°C, however PVCu soil stacks can cope with short intermittent discharges with temperatures up to 90°C

Modified unplasticised polyvinyl chloride, MuPVC, has a softening point above 90°C so, in addition to the normal properties of PVCu, it can also cope with higher temperature discharges over prolonged periods.

The higher softening point of polypropylene, above 140°C, means it can cope with high temperature discharges, such as boiling water, and it is the most appropriate material for the manufacture of traps.

### 1.04 UV LIGHT RESISTANCE

While polypropylene has good chemical resistance, resistance to UV light is poor. Exterior applications require protection using paint or enclosure. MuPVC and PVCu can be formulated to give excellent resistance to UV light, and so is suitable for exterior uses, requiring no additional protection.

### 1.05 CHEMICAL RESISTANCE

Polluted industrial atmospheres will not affect Hunters' Soil and Waste Systems. PVC and polypropylene are rot and vermin proof and resistant to most commonly occurring chemicals, so will not be affected by domestic effluents. Notable exceptions however are solvents, including those incorporated in most timber preservatives.

Hunter Soil and Waste systems should not be used for the disposal of industrial chemical wastes. BS Code of Practice 312 Part 1 gives comprehensive information on the chemical resistance of plastics used for pipework. It should be consulted in all doubtful cases. A copy is held by Hunters' Technical Department which can be quoted from on request.

### 1.06 TIMBER PRESERVATIVES

Certain spirit based wood preservatives can attack PVCu products. For further information contact the preservative manufacturer.

Before any component is fixed to a timber surface treated with wood preservative, the preservative must be dried thoroughly. The solvent content of wet preservatives can attack and embrittle plastic materials.

### 1.07 FIRE PERFORMANCE

Hunter Fire Stops are used to maintain the fire resistance of walls and floors when they are penetrated by combustible pipework made from PVCu, MuPVC or PP.

# 1.00

## Physical and Mechanical Properties

### 1.08 THERMAL EXPANSION

PVCu has a coefficient of expansion of approximately  $0.06\text{mm/m/}^{\circ}\text{C}$ . Consequently a 2m length of soil or waste pipe will expand by 2.4mm for a  $20^{\circ}\text{C}$  rise in temperature. This expansion is taken into consideration in the design of systems and components, and must be accommodated when installing. It is important that this movement be allowed for by including an expansion gap at ring seal joints. The spigot should be pushed fully into the ring seal socket, marked at the socket face, and then withdrawn by 10 mm. A subsequent check should be made to ensure that the expansion gap is not lost during further installation work. Similar allowances should be made when installing polypropylene waste systems.

