

# Technical Note VX-TN-8C

## Introduction

PVC-U pipes and fittings are commonly used in waste drainage and sewerage systems in both above ground and buried applications. They are more than capable of handling normal high and low temperature discharges in these applications. There are however, some applications in which the temperature limitations need to be assessed more thoroughly.

## Low Temperatures

A minimum service temperature for PVC pipes is not specified. However, it should be noted that the resistance of PVC pipes to impact decreases with temperature. If PVC pipes and fittings are being installed at low temperatures (around 0°C), additional care should be taken to avoid impact. Where impact is likely to occur in above ground pipe installations, protection should be provided.

## Elevated Temperatures

The recommended maximum continuous operational temperature for UPVC pipes is 60°C. This limitation refers to the complete pipe wall being at 60°C and would apply for continuous flow of a fluid at 60°C.

For intermittent flow, the fluid temperature can be higher due to the low thermal conductivity of PVC. In these circumstances, the duration and volume of the discharge determines the maximum temperature, which should be assessed in terms of a 60°C limitation average across the pipe wall thickness. In most cases, higher temperature discharges are limited to a small volumes and short durations, and PVC pipes are satisfactory. For example, thermal cycling tests for PVC drainage pipes require that a test installation withstand alternating 90 second cycles of 34 litres of water at 88°C to 95°C with 34 litres of water at 10°C to 15°C without leakage or excessive deformation. In other applications, such as commercial laundries or kitchens, where large volumes are discharged over longer periods of time, specific advice should be obtained before selecting PVC. Contact the Vinidex Technical department for more information.

For installation recommendations, including provision of supports etc. for elevated temperature applications, reference should be made to AS2032.