Adjusting the allowable pressure for increasing temperature

Pressure ratings for thermoplastic pipes are determined in a water environment at a temperature of 20°C. As the temperature of the media (and/or the piping environment) increases, the thermoplastic material becomes more ductile, causing a decrease in the tensile strength of the pipe. Because of this, the pressure rating of the system must be reduced as the temperature rises to allow for safe operation. The temperature correction (de-rating) factors for each material is shown in the following table:-

Temperature correction (de-rating) factors

	Working Temperature						
Material	20°C	40°C	60°C	80°C	100°C	120°C	140°C
PVC-U	1.00	0.58	0.22	-	-	-	-
PVC-C	1.00	0.81	0.50	0.26	-	-	-
ABS	1.00	0.72	0.45	-	-	-	-
Polyproplene	1.00	0.82	0.50	0.25	0.05	-	-
Polyethylene	1.00	0.53	-	-	-	-	-
PVDF	1.00	0.82	0.66	0.51	0.39	0.29	0.19