Explanation of Material / SDR Relationship

The pressure rating of pipe (PN) is determined by the diameter, wall thickness, and material types and is expressed as:

PN – Pressure pipe rating at 20°C (MPa x 10)

The basic polyethylene (PE) material types used for pipe production are PE63, PE80 and PE100, the number indicating long term strength.

The term SDR, Standard Dimension Ration, is introduced to describe the pipe, in combination with the material type.

$$SDR = \frac{\text{Min. OD}}{\text{Min. Wall Thickness}}$$

The higher the SDR, the thinner the pipe, and the lower the pressure rating.

AS/NZS 4130 uses a standard SDR series, in combination with the three material types, to provide standard pipe pressure ratings as shown in the table.

The field conditions under which poly pipe is welded have a considerable effect on the strength of the joint. Any contamination of the weld, whether it be oxidised polyethylene, water, dust, oils etc can ruin joints.

Table 1

SDR	PE 63	PE 80	PE100
41		PN 3.2	PN 4
33	PN 3.2	PN 4	
26	PN 4		PN 6.3
21		PN 6.3	PN 8
17	PN 6.3	PN 8	PN 10
13.6	PN 8	PN 10	PN 12.5
11	PN 10	PN 12.5	PN 16
9	PN 12.5	PN 16	PN 20
7.14	PN 16	PN 20	PN 25

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