

TankAssessor™ - Entry Criteria

Industrial route: Typically 3-5 years' experience consistently working in inspection & maintenance of storage tanks (in excess of 150m³), plus ability to deal with scientific formulae and calculations

OR

Academic route: Engineering Degree (e.g. BSc) from a recognised university, plus a minimum of 6-months – 1 years' experience consistently working in inspection & maintenance of storage tanks (in excess of 150m³), plus ability to deal with scientific formulae and calculations.

TankAssessor™ - Typical Calculations

The following are examples of the kind of calculations / formulae covered in the TankAssessor™ course and may be encountered in the examinations (note: this is an illustration, not a test):

Transpose the actual height 'h' of each shell course to an equivalent height 'H_e' of thickness 't_{min}' using the following equation:

$$H_e = h \sqrt{\left(\frac{t_{min}}{t}\right)^5}$$

Where:

- t_{min} = corroded thickness of the top course (in mm)
- t = corroded thickness of each shell course (in mm)
- h = actual height of each shell course (in m)
- H_e = transposed height of each shell course (in m)

Calculate transformed shell height: $HE = \sum H_e$

Note: The transformed shell has a uniform thickness 't_{min}' and a height 'H_e' which provides equivalent stability as the actual shell with variable thicknesses and a top course thickness equal to 't_{min}'.

Calculate factor 'K' using the following equation:

$$K = \frac{9500}{3.563Vw^2 + 580Va}$$

Calculate maximum permitted spacing 'H_p' of stiffner rings on transformed shell in (m):

$$H_p = K \sqrt{(t_{min}^5 / D^3)}$$

The following formula from DIN 4119 is widely used to calculate the maximum permissible sag:

$$f = d \sqrt{\left(\frac{f_o}{d}\right)^2 + 3280 \left(\frac{K}{E}\right)}$$

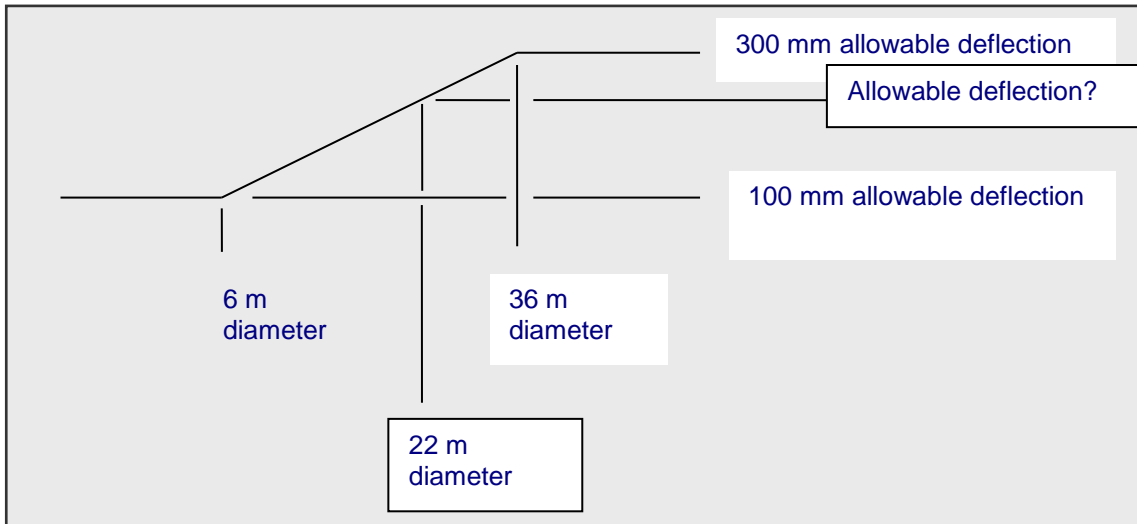
Assess the value from the formulae stipulated below:

$$H_p = K \sqrt{\frac{t^5}{D^3}} = \frac{t^{2.5}}{D^{1.5}}$$

And

$$K = \frac{95000}{(3.563V_w^2 + 580V_a)}$$

Use a calculator to assess the values within the graphic shown below:



If you find the above questions or formulae difficult, you should consider getting some tuition in scientific formulae and calculations, or use of a scientific calculator, prior to attending TankAssessor™.