

C4559 - St. Mary's Park Limerick

Site Specific Assessment Criteria Calculation for Lead (Pb) in soil

From Equation 2.2, DEFRA / EA 2002

$$S = \left(\frac{T}{G^n} - B \right) \times \left(\frac{AT}{\text{BKSF} \times \text{IR} \times \text{AF} \times \text{EF} \times \text{ED}} \right)$$

T = 10µg dL ⁻¹	DEFRA HCV, DEFRA and EA 2002
G = 2.0	SGV value used by DEFRA / EA
B = 2.3µg dL ⁻¹	default background blood lead from DEFRA / EA 2002
n = 1.645	default for degree of protection equating to 95%
AT = 23725 days	Averaging time assumed for lifetime exposure of 65 years
BKSF = 0.4µg dL ⁻¹ per µg day ⁻¹	default exposure model DEFRA / EA 2002
IR = 0.1g day ⁻¹	default soil ingestion rate for 0-6 year old child, EA 2009
AF = 0.12	default absorption factor from DEFRA / EA 2002
EF = 86 day yr ⁻¹	site specific exposure duration
ED = 65 yr	assumed for lifetime exposure

$$S = \left(\frac{10}{2^{1.645}} - 2.3 \right) \times \left(\frac{23725}{0.4 \times 0.1 \times 0.12 \times 86 \times 65} \right)$$

$$= \left(\frac{10}{3.13} - 2.3 \right) \times \left(\frac{23725}{26.832} \right)$$

$$= \left(3.19 - 2.3 \right) \times \left(\frac{23725}{26.832} \right)$$

$$= \left(0.89 \right) \times \left(884.2 \right)$$

$$= \mathbf{787}$$