



## Calculation of DE<sub>cmc</sub>

Author - Tim Mouw

### Calculation of DE<sub>cmc</sub>

$$T = 0.36 + \text{abs} [ 0.4 \cos ( 35 + h_{ab} ) ]$$

unless  $h_{ab}$  is between  $164^\circ$  and  $345^\circ$ , then

$$T = 0.56 + \text{abs}[ 0.2 \cos ( 168 + h_{ab} ) ]$$

"abs" indicates the absolute ( positive value ) of the term inside the square brackets

$$F = \left[ \frac{(C_{ab^*})^4}{(C_{ab^*})^4 + 1900} \right]^{0.5}$$

$$S_c = \frac{0.0638C_{ab^*}}{1 + 0.0131C_{ab^*}} + 0.638$$

$$S_H = ( FT + 1 - F ) S_C$$

$$\text{for } L^* > 16 \quad S_L = \frac{0.040975L^*}{1 + 0.01765L^*}$$

$$\text{for } L^* \leq 16 \quad S_L = 0.511$$

Where  $l = 2$  and  $c = 1$  :

$$DE_{CMC(2:1)} = \left[ \left( \frac{DL^*}{lS_L} \right)^2 + \left( \frac{DC_{ab^*}}{cS_C} \right)^2 + \left( \frac{DH_{ab^*}}{S_H} \right)^2 \right]^{0.5}$$