Evaluation method of air temperature for 100% free cooling for not standard working condition (EEF series)

Method to evaluate air temperature for 100% free cooling in case of:

- different Leaving Water Temperature;
- different design Ambient Air Temperature;
- different refrigerated fluid (Ethylene Glycol or Propylene Glycol);
- pay attention: always $\Delta T = EWT - LWT = 5°C$.

$$\text{Free Cooling Capacity} = \text{Nominal Cooling Capacity} \times CD$$

$$T_{100\%FC} = LWT - [\, CD \times CG \times (\, 7 - T_{100\%FC,ref}\,)\,]$$

Where:

- LWT, is the leaving water temperature in [°C];
- CD, is the Corrective Factor for Duty (from *'Corrective Factors for Duty – EET/EEF'*);
- CG, is the Corrective Factor for Glycol (tables 1 and 2). CG = 1 for water without glycol;
- $T_{100\%FC,ref}$, is the Air Temperature for 100% free cooling with 100% water 12/7, (from Hitema datasheets).

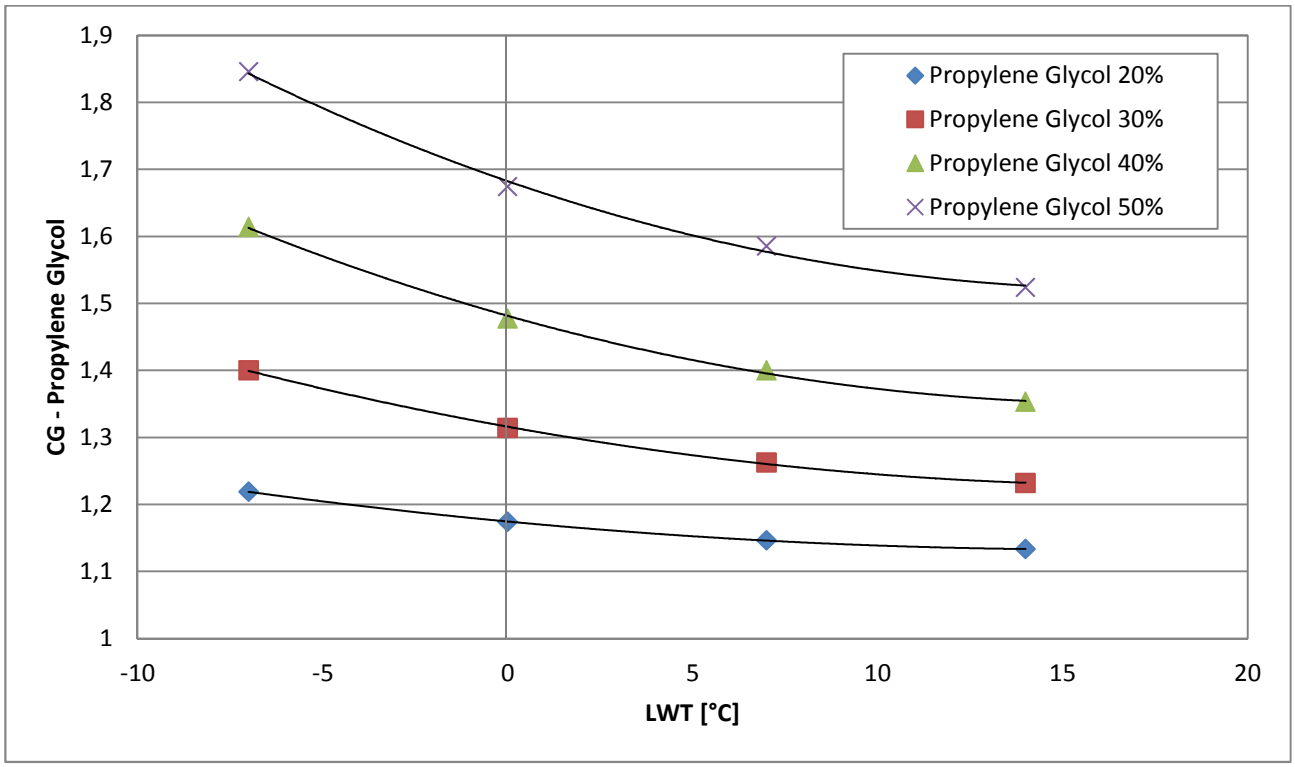

Table 1 – Corrective factor CG for Propylene glycol

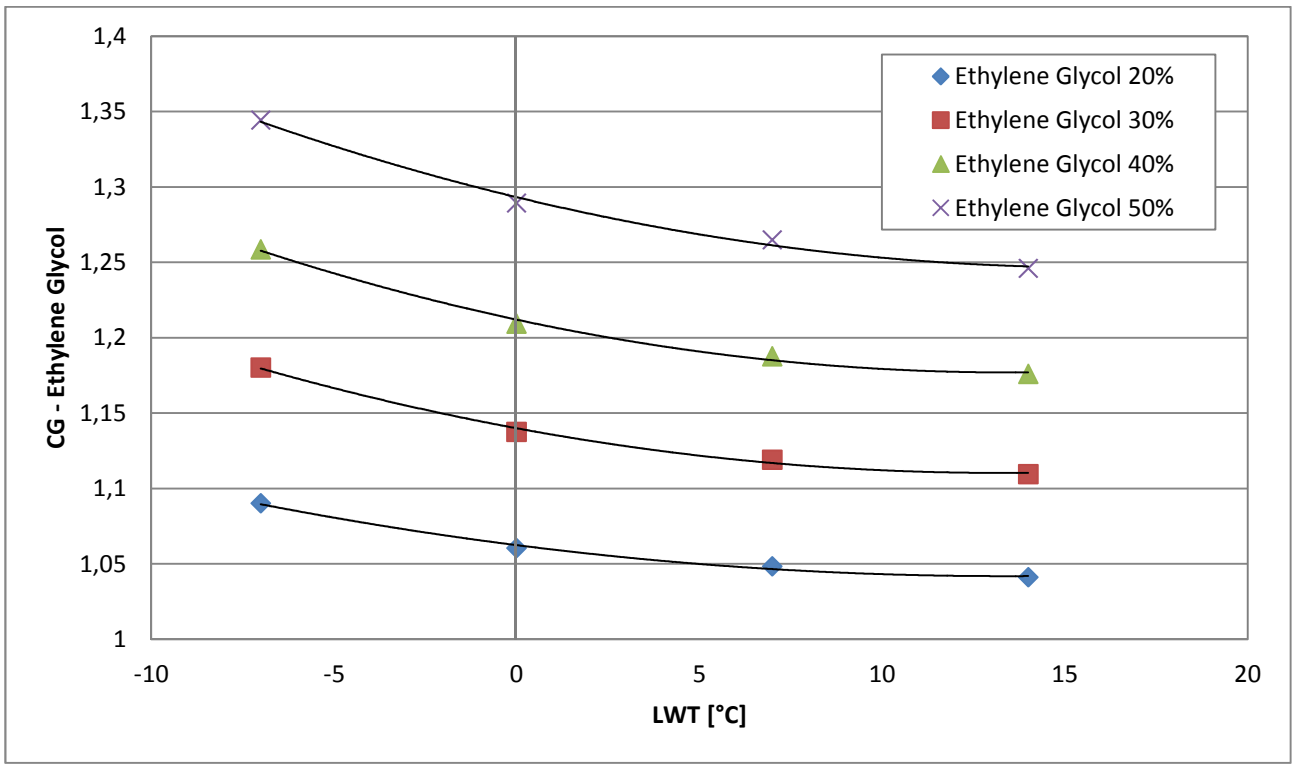

Table 2 – Corrective factor CG for Ethylene glycol