

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

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

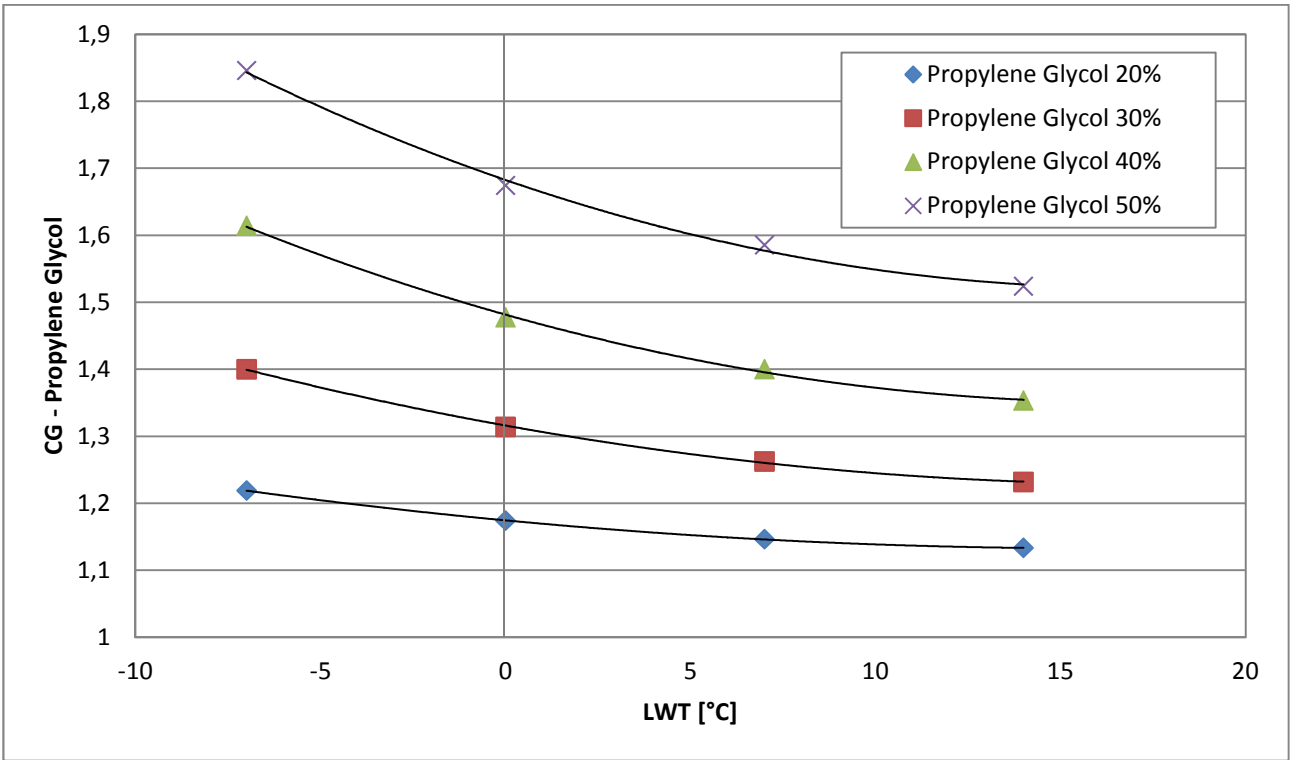
- different Leaving Water Temperature;
- different design Ambient Air Temperature;
- different refrigerated fluid (Ethylene Glycol or Propylene Glycol);
- pay attention: always  $\Delta T = EWT - LWT = 5^{\circ}\text{C}$ .

Free Cooling Capacity = Nominal Cooling Capacity x CD

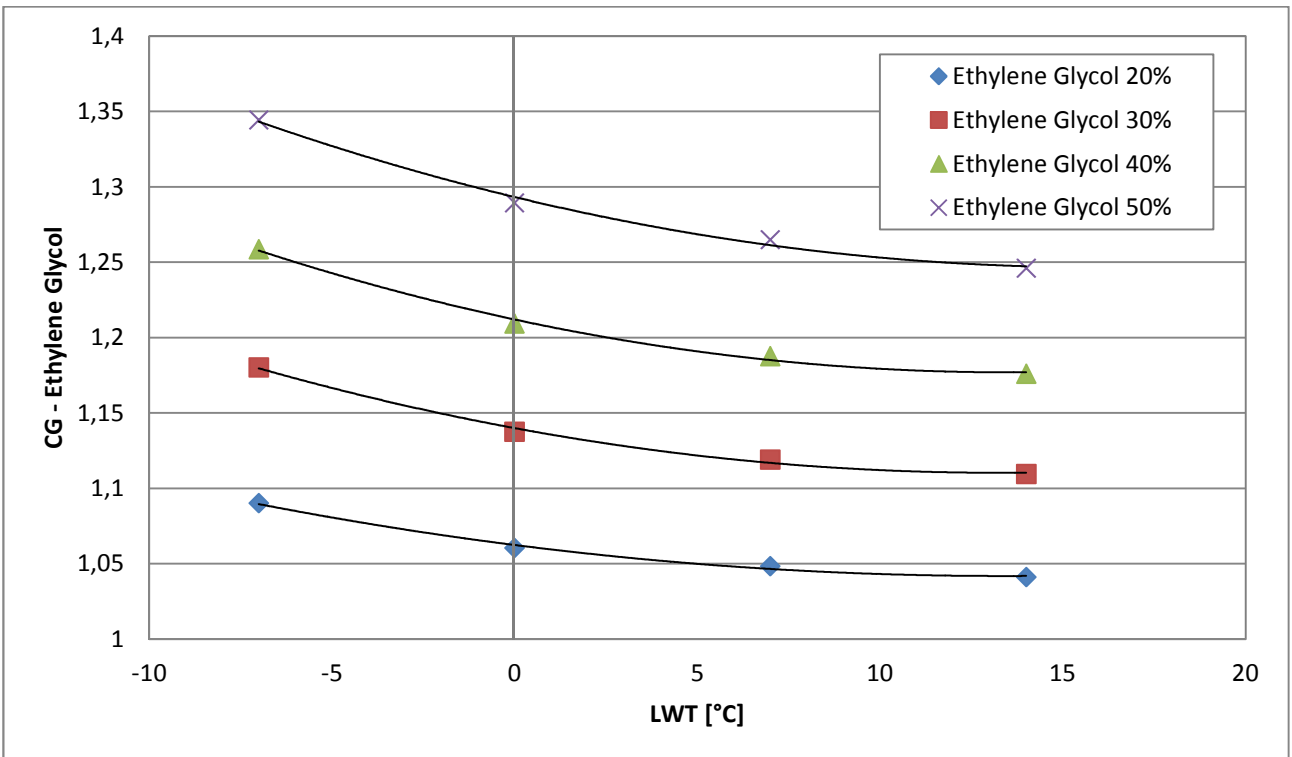
$$T_{100\%FC} = LWT - [ CD \times CG \times ( 7 - T_{100\%FC,ref} ) ]$$

Where:

- LWT, is the leaving water temperature in [ $^{\circ}\text{C}$ ];
- CD, is the Corrective Factor for Duty (from '*Corrective Factors for Duty – ENR/ENRF*');
- 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**