CHE 551 Advanced Topics in Chemical Engineering
Energy Optimization Using Pinch Analysis

Homework 1

Problem # 1

The thermal data for a chemical process is shown in the table below. Calculate the minimum hot and cold utility requirements and location of the pinch assuming $\Delta T = 10\ ^{o}C$. Use the following methods to find the answer:

1- Composite curves.
2- Problem Table Algorithm.
3- Grand Composite curve.

Repeat steps 1,2 and 3 for a $\Delta T = 5\ ^{o}C$.

Thermal Data

Stream No	Stream Type	Start Temperature (T_s) (°C)	Target Temperature (T_t) (°C)	Heat Capacity Flowrate (CP) (kW/°C)
1	Hot	180	80	20
2	Hot	130	40	40
3	Cold	60	100	80
4	Cold	30	120	36