



Glass and heat exchange: VETH

The glass industry involves high temperature processes which include heat exchange whose understanding and monitoring are essential in terms of performance and stability of manufacturing processes.

➤ **Purpose of the training**

To acquire the basic knowledge of the physical laws governing the thermal exchanges (radiation, conduction, convection, contact) and the applications of these laws to the thermal exchanges in the furnace, during forming, manufacturing and in the lehrs.

➤ **Relevant staff**

Anyone confronted with glass heating and cooling during industrial glass-manufacturing processes: technical staff of fusing, forming, feeder, annealing lehr, tempering, decoration, consulting firm, research, modeling.

➤ **Program** (adapted to the requirements of the trainees)

- General knowledges of the heat and various modes of heat transfer
- Heat transfer through radiation
 - Radiation laws
 - Radiation/Material Interaction
- Implementation at glass (semi-transparent material)
- Heat transfer mechanism through conduction (steady state)
 - Conductivity
 - Heat resistance (serial, parallel)
- Heat transfer mechanism through convection (steady state)
 - Laws relative to convection
 - Main influential parameters
 - Notion of fluid mechanics
- Applying heat transfer through wall
- Applying heat transfer through glass-metal contact
- Applying heat transfers to glass-mold-ventilation
- Notions of transient heat transfers (diffusivity, effusivity)
- Applying to problems encountered by trainees

• ➤ **Duration of the training**

From 1 to 2 days depending on the desired program

➤ **Place of training**

At your site or at Espacesreunion 43 rue de Dunkerque 75010 Paris (300m from the Gare du Nord station)

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