

# An Evaluation of the Heat Transfer Assessment Involved in a Pool Fire Occurring at a Mass Storage Facility for Hydrocarbon Substances

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**Abstract:** Results of recent researches of large pool fires are reviewed. Researches on combustion characteristics of large petroleum fires have been conducted by many research groups. To do large fire experiments costs very much and huge open space is taken, but it is important to conduct large scale experiments for obtaining information of large real tank fires. Therefore, in order to promote large pool fire research, understandings of combustion characteristics of petroleum for fire safety design and fire fighting engineering. Worldwide collaboration is very important. Dealing with handling and storage of hydrocarbons, common incidents like fire and explosion may occur. That may influence human, property and environment. Spillage of liquid or liquefied gases occurs often at bulk storage of hydrocarbons. In case of spill, if ignition source is present there, the spill will take no time in catching fire the consequences may be life threatening accident. The heat radiated from a fire play a crucial role in spreading fire to the nearby tank or other object. Radiated heat is one of the prominent factors affecting spread of fire. Many accident occurs due to radiated heat only and threatens life and property. So it is necessary to know how much heat would be transferred to some object or tank situated at some distance from the fire, so that effective measures can be taken to prevent the spread of fire from one place to another place. The value of heat transfer rate will also suggest a minimum distance at which a fire fighter can fight fire safely. A separation distance can be fixed between two storage based on these values. Value of heat transfer is calculated by some standard methods like MUDAN method,  $t_2$  model for heat transfer calculations, one zone and two zone models etc.

**Keywords:** Fire hazard, conduction, Convection, radiation, pool fire, Crude Oil, LPG MUDAN method  $T_2$  model Zone model etc