Engineering Council of India

Free Webinar

A Comparison of the Methods to Model the Concentration Decay Along the Jet Axes

INTRODUCTION

Unignited CNG release from onboard storage in a naturally ventilated covered car park has been analyzed. Releases through different Thermally Activated Pressure Relief Devices (TPRD) diameters of 2.7mm (real diameter) and 3.5 mm (equivalent diameter) were compared, to understand the gas dispersion, specifically the dynamics of the flammable envelope. The similarity law was also used to calculate the concentration decay of the natural gas but the approach that was taken was proven to be wrong because it was not used correctly. The work of mine presents the measurements of mass fraction along the jet axis of the natural gas at pressures ranging from 0.114 MPa to 7.1MPa at the temperature of 293 K using the Chen and Rodi similarity law and the calculation of compressibility factor using different gas laws to decide how to treat the methane gas (i.e. ideal or real) and to compare them with the experimental data obtained from the past research work by different authors. In this work it is proved that the similarity law can be directly applied for the expanded jets but in case of under-expanded jets, equivalent diameter must be calculated before applying the similarity law. So, the equivalent diameters have been calculated by making the appropriate equation of state and used correctly for the under-expanded jets. In addition, the gas dispersion SLAB has been used to model the cases to understand the limitations of its applicability.

Mr. Mohammed Zaid Chougle is a Mechanical Engineer with the experience and technical expertise to provide the highest quality mechanical component and system support. Skilled at formulating and implementing Steel Fabrication, Maintenance, AutoCAD, Solid works, CAD (Sketch up), Python, SQL, Mat lab, Autodesk fusion 360 seeking a challenge and varied position that will enable me to capitalize on my education and work experience, expand my knowledge and offers opportunities for personal and professional growth.

Date: May 29, 2021

Time: 1500 Hrs.

Duration: 1 Hour

Who Can Attend:

The students, researchers interested in thermal transport and managing heat dissipation in high heat flux technologies, Pollution Control in vehicles, Internal Combustion engines' users and manufacturers, Designers of covered vehicles parking areas etc.

About ECI

Engineering Council of India (ECI) is the apex body of the engineering profession in India. It is mandated to look after and develop the Indian engineering profession. As on date, it has 33 Indian engineering professional bodies as members representing practically all streams of engineering. It has representatives from 8 Government Departments on its Board. It is duly authorised by AICTE, CPWD, Niti Aayog etc, by MoUs or documents to interact with them, in specified areas. Further details can be had from its website www.ecindia.org.

FEE DETAILS:

Though Participation is free , for E-certificate for 2 credit hours on payment of fee

- Rs 300 + 18 % GST for ECI's Registered Engineers

BANK DETAILS:

NEFT/RTGS in

- Bank A/c No. 1220 10 000 197 56 of HDFC Bank Ltd.,
- IFSC code: HDFC 000 1374

Registration online through: https://forms.gle/i7MeMMvqu3DTvbCk9

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