第 131 回メカニカルシステムセミナー
第 117 回広大 ACE セミナー

An Introduction to Dust Explosions: Understanding the Myths and Realities of Dust Explosions for a Safer Workplace

日　　時	2023 年 4 月 21 日（金）　9:00－11:00（日本標準時）
場　　所	オンライン（Teams）
URL	https://teams.microsoft.com/l/meetup-join/19%3ameeting_NzVmYjFhMTItNWEzNy00YTBjLTkyYTYtOTg1YTAwZTQ0MzVk%40thread.v2/0?context=%7b%22Tid%22%3a%22c40454dd-b263-4926-868d-8e12640d3750%22%2c%22Oid%22%3a%22029bc203-c6e3-415b-9272-114cded05d60%22%7d
講　演　者	**Prof. Paul Amyotte** **Dalhousie University, Canada**

Dr. Paul Amyotte, P.Eng. is a Distinguished Research Professor and Professor of Chemical Engineering at Dalhousie University (Halifax, Canada), where he held the C.D. Howe Chair in Process Safety from 2011-2020. He is the current editor of the Journal of Loss Prevention in the Process Industries, and a past-president of the Canadian Society for Chemical Engineering, Engineers Nova Scotia, and Engineers Canada. In 2019, he was presented with the Sovereign's Medal for Volunteers by the Governor General of Canada.

講演概要	次ページの Abstract をご参照下さい.
申込方法	下記のリンクにご記入下さい. https://forms.gle/vjrBp3YwDyUKbmVa6
参　加　費	無料

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Abstract

The necessary conditions for a dust explosion are well-expressed by the explosion pentagon: (i) fuel, (ii) oxidant, (iii) ignition source, (iv) mixing of the fuel and oxidant, and (v) confinement of the resulting mixture. It would seem relatively straightforward to then prevent or mitigate a dust explosion by removing one of the sides of the pentagon. The field of dust explosion risk reduction is, however, more complex – due in part to gaps in understanding of the scientific and engineering principles related to the occurrence of dust explosions.

This presentation will explore dust explosion fundamentals with the overall learning objective of participants being able to:

- identify the three elements of the fire triangle and the five elements of the explosion pentagon,
- explain how gaseous, liquid, and solid fuels burn,
- define basic explosibility parameters such as maximum explosion pressure and maximum rate of pressure rise,
- distinguish between a physical explosion and a chemical explosion,
- distinguish between a deflagration and a detonation,
- define *combustible dust*,
- describe the fundamentals of a dust explosion according to the explosion pentagon,
- calculate the airborne concentration resulting from the dispersion of a dust, given its bulk density, layer thickness and enclosure height,
- describe, with examples, the sequence of primary and secondary explosions, and
- explain how confinement (by various means) facilitates the development of explosion overpressure.