

**DEPARTMENT OF FORESTRY AND FIRE PROTECTION**

P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 653-7772
Website: www.fire.ca.gov



Mike Wilson, Senior Safety Engineer
Cal/OSHA Research and Standards
1515 Clay Street
Oakland, CA 94612
MWilson@dir.ca.gov

CAL FIRE Experimental Temporary Variance Request from Article 10.1, §3410.1 (d)(1) for DuPont Nano Pant Field Evaluation

To whom it may concern,

Enclosed is a variance request from the California Department of Forestry and Fire Protection (CAL FIRE) regarding California Code of Regulations, Title 8, Article 10.1, Section 3410.1(d)(1). Should you have any questions regarding this application, please contact Jeremy Lawson, Staff Chief of Safety and Emergency Medical Services (EMS) Programs at Jeremy.Lawson@fire.ca.gov.

1. *State the Title 8 safety orders that are the subject of the proposed temporary experimental variance. List all sections of California Code of Regulations, Title 8, that apply, plus applicable ANSI, ASME, NFPA, API or other national consensus standards that are included in the applicable Title 8 sections.*
 - a. CAL FIRE is requesting approval for an experimental variance from Article 10.1 for one year. The specific section of the Title 8 regulation from which the variance is sought, includes: CCR Title 8, §3410.1. Personal Protective Equipment for Wildland Fire Fighting. (d) Body Protection. (1) In Service Body Protection. This section states that protective garments used by fire fighters shall meet the requirements of NFPA 1977, Standard on Protective Clothing and Equipment for Wildland Fire Fighting, 2011 Ed.
2. *State all addresses and locations where the proposed temporary experimental variance will be in effect (not applicable for construction, service, and other industries where future site locations are unknown.)*
 - a. CAL FIRE will conduct evaluations of the wildland garment described below with up to 50 firefighters, who will wear the garment during all training and emergency response activities where they would normally wear wildland protective gear. The 50 employees selected are from 11 different CAL FIRE Administrative Units across CAL FIRE's responsibility area. CAL FIRE cannot provide exact addresses for this variance, as the employees wearing the garment are required to respond to emergency response incidents

across the State, regardless of what Administrative Unit they typically work in.

3. *State if the applicant has been cited by the Division, filed an appeal, or has an appeal pending before the Occupational Safety and Health Appeals Board (OSHAB) regarding the safety orders for which the employer is applying for a temporary variance.*
 - a. CAL FIRE has never been cited nor do we currently have an appeal pending before the OSHAB for the section we are requesting a variance for.
4. *Describe in detail the conditions, practices, means, methods, operations, or processes that will provide new and improved techniques to safeguard the health and safety of employees. Include how the employer will protect employees against the hazards covered by the regulation for which an experimental variance is requested.*
 - a. This experimental variance will allow for a field evaluation of a Dupont Nano particulate blocking wildland pant to determine if the material is a feasible option for PPE in wildland settings based on how the pant performs relative to form, fit and function.
 - b. If successful during the field evaluation, this material will improve firefighter safety by effectively blocking dermal exposure to particulates, carcinogenic heavy metals and other contaminants during firefighting operations.
 - c. This exemption would permit up to 50 employees to wear the Dupont Nano pant for a yearlong field evaluation. Multiple versions of the pants may be developed, depending on feedback from evaluators. The pants will be worn for several months to evaluate form, fit and function through various seasonal conditions and to evaluate any changes in design.
 - d. The pants will be made by Crewboss and will be completed by January 2024. They will not be NFPA approved, because obtaining NFPA approval is not cost effective or efficient at this stage of development. Feedback from the evaluation will be used to develop a comfortable prototype before pursuing NFPA approvals with Underwriters Laboratories (UL). Evaluation prior to NFPA approvals allows the manufacturer to fine-tune a prototype.
 - e. Each new version of the Dupont Nano pant would need to go through NFPA approval if this variance is not granted. Each approval would be costly and take months.
 - f. This fabric has been designed to meet CAL FIRE'S hazard risk assessment by lowering the particulate blocking from 99% to 92% in order to meet our current requirement for a Radiant Protective Performance (RPP) value of 10 and a Total Heat Loss (THL) value of 500.

- g. Dupont utilizes in-house testing using the same methods as NFPA, which they apply prior to submitting a garment for NFPA approval to ensure the application will be approved. The attached datasheet displays DuPont's testing metrics, showing that the fabric that will be used meets or exceeds NFPA specifications. We will ensure that any subsequent versions meet our hazard risk assessment and are subjected to Dupont's in house testing that uses the same methods as NFPA. Participants will be reminded of the hazards associated including radiant heat and heat illness. The pant is expected to provide the same protections as the employees' NFPA-approved and Department-issued pant.
- 5. *Certify that all employees who may be affected by the temporary experimental variance and their representatives have been notified of the temporary variance application by providing a copy of the application letter to employees and employee representatives, posting a copy of the application letter at places where employees notices are normally posted, and by other appropriate means such as providing an electronic copy of the application letter to employees and employee representatives. Ensure that the application letter has been translated into the language(s) spoken by employees for those employees who do not speak English. Include in the application, a description of how employees have been informed of the temporary variance application.*
 - a. This field evaluation is limited to select CAL FIRE employees, therefore participants have been notified through a letter sent by email. In the letter, it was communicated to participants and their supervisors that this field evaluation would be occurring under an experimental variance granted by the Division and that the pant has not been NFPA approved. They will each be given a copy of the variance application with the summary details provided once approved.
 - b. This field evaluation is voluntary, and employees are given the option to not participate. Participants have been informed of their right to refuse participation.