

**OCCUPATIONAL SAFETY  
AND HEALTH STANDARDS BOARD**

2520 Venture Oaks Way, Suite 350  
Sacramento, CA 95833  
(916) 274-5721  
FAX (916) 274-5743  
Website address: [www.dir.ca.gov/oshsb](http://www.dir.ca.gov/oshsb)



**PROPOSED PETITION DECISION OF THE  
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD  
(PETITION FILE NO. 528)**

INTRODUCTION

The Occupational Safety and Health Standards Board (Board) received a petition on February 14, 2012, from Mr. Andras Uhlyarik, President of California Pulse, Inc., (Petitioner). The Petitioner requests the Board to amend Title 8, California Code of Regulations, by adopting Section 7.5 of the National Fire Protection Association (NFPA) 33, 2011 edition. The referenced Section 7.5 of the NFPA 33-2011 contains standards for the recirculation of exhaust air from spray areas using Flammable or Combustible Materials.

Labor Code section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health and requires the Board to consider such proposals and render a decision no later than six months following receipt. Further, as required by Labor Code section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division of Occupational Safety and Health (Division) must be referred to the Division for evaluation, and the Division has 60 days after receipt to submit a report on the proposal.

SUMMARY

The Petitioner feels that the changes in the spray finishing industry addressed in the 2011 edition of the NFPA 33, Section 7.5 should be reflected in Title 8 to clarify the acceptable method for recirculation of exhaust air from spray areas.

DIVISION'S EVALUATION

In its petition evaluation report, dated April 10, 2012, the Division indicated that it does not recommend granting this petition and feels the Petitioner's request is problematic for several reasons. The Division stated that the proposal lacks the necessary protective measures that would address hazards associated with the increased concentration of contaminants in spray booths during operation where exhaust air is recirculated. For that reason, the Division feels that adopting NFPA 33 section 7.5 as proposed by the Petitioner would make California's spray coating standard in Section 5153 less effective than the Federal standard in 29 CFR 1910.107(d)(9). The Division also feels that the Petitioner's proposal, if adopted, would not provide the necessary guidance for the safe operation of spray coating operations with recirculating exhaust air. Also, the spray coating standards as proposed would not be enforceable, because the employer and the Division would have difficulty identifying acceptable control

parameters for every possible type of flammable spray coating used, at any concentration and for any duration.

### STAFF'S EVALUATION

Board staff prepared an evaluation dated May 24, 2012, which stated that in order to protect the employee(s) inside the spray booth against inhalation of overspray and evaporated solvents, employers provide respiratory protection to their employees in accordance with Sections 5153(g) and 5144. A commonly used respirator in spray coating operations is the air purifying respirator to remove the toxic components from the workers breathing air inside the spray booth. However, any overspray and solvents not filtered out by the respirator filters, or that leak into the respirator when the facepiece seal is lost, are inhaled by the worker and represent a significant health hazard. In addition to the air purifying respirators, supplied air respirators are used in the spray coating industry. The supplied air respirator provides the worker with respirable air from a source outside the spray booths. Because the supplied air respirators are designed to operate with the facepiece under positive pressure, the overspray and solvents inside the spray booth are prevented from contaminating the worker's breathing air, even when the facepiece seal is temporarily lost. For this reason, some spray coating manufacturers require painters to wear supplied-air respirators when spraying paints with toxic components like isocyanate.

Studies<sup>1,2,3,4</sup> conducted by United States Environmental Protection Agency and Department of Defense services have demonstrated that the use of spray booth recirculation is a viable means of reducing emissions. The study reports indicate that reductions of exhaust flow rates of up to 90 percent were possible when using recirculation in properly designed and operated booths, while maintaining effective worker protection. The same studies<sup>3,4</sup> have shown that the recirculation of exhaust air causes a significant increase in the concentration of contaminants (solvents and resins) in the background air in the spray booth but shows negligible effect on the already high concentration of contaminants in the breathing zone of the employees operating a spray gun. Board staff feels, therefore, that, for spray coating operations that recirculate exhaust air, any upgrading of the personal protective equipment would provide equal or superior safety to current Title 8 requirements for spray coating operations that prohibit recirculation of exhaust air.

During the review of NFPA 33-2011, Chapter 7.5, Board staff discussed with Nancy A. Pearce CIH, Sr. Fire Protection Engineer with the National Fire Protection Association (NFPA) the scope and intent of Chapter 7.5. Ms. Pearce indicated that the intent of Chapter 7.5 is to control fire hazards during the spray applications using flammable or combustible materials. Ms. Pearce stated that Section 7.5.1 addresses specific fire safety requirements for unstaffed spray coating

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<sup>1</sup> Mobile Zone Spray Booth Recirculation System, K. James Hay, Joyce Baird, Clyde Smith, Don Schiller, United States Army Corps of Engineers, Engineer Research and Development Center, March 2005

<sup>2</sup> Evaluation of Paint Spray Booth Utilizing Air Recirculation (at Deere & Company, Davenport, Iowa), L. E. Norton, R. J. Bryan, D. P. Becvar, United States Environmental Protection Agency, September 1984

<sup>3</sup> Recirculating Ventilation System in an Integrated Maintenance Hangar Supporting B-1B & KC-135 Aircraft, J. D. Wander, B. S. Adams, S. T. Gibbs, C. A. Williston, United States Air Force Research Laboratory, 2000-2001

<sup>4</sup> Cost-Effective Ventilation of a Large-Aircraft Painting Facility at Robins AFB, Georgia, J. D. Wander, W. H. Deaver, J.K. Thovson, T. Hurley, G. Doddington, United States Air Force Research Laboratory, April 2005

operations, and Section 7.5.2 clarifies that, in addition to requirements in Section 7.5.1, when recirculating exhaust air during staffed spray coating operations, other safety requirements are mandated that address toxicity and permissible exposure limits that are not addressed by the NFPA 33 standard. Ms. Pearce noted that the intent of Section 7.5.2 was to clarify that there are more restrictive health and safety standards than the fire safety requirements in Section 7.5.1 that need to be addressed. ANSI/AIHA Z9.7-2007, for the Recirculation of Air from Industrial Process Exhaust Systems, is referenced in this context in Section 7.5.2.

In reviewing Section 4.2.1 in ANSI/AIHA Z9.7-2007, Board staff notes that this standard would address the employee health/toxic exposure issue raised by the Division. This standard mandates that, if there are components of spray coating materials for which there are no cleaning systems that effectively remove the hazardous contaminants, the recirculation of such exhaust air would be prohibited.

Board staff recognizes the importance of hazard control at spray coating operations to prevent the adverse health effects related to exposures to the hazardous fractions of spray coatings. Board staff notes that both short term and chronic occupational exposures to many of the spray coating components can result in acute life threatening events and chronic health problems that can affect the quality of life of the exposed employees and in some cases their unborn children. Therefore, Board staff has serious reservations with regard to the practice of recirculation of air in staffed spray coating operations, because breaches in the safety protocol or engineering controls can have dire consequences for those individuals exposed to the hazardous components of spray coatings as well as increased fire and explosion hazards.

Notwithstanding the above concerns, technical advances at times make changes to safety standards both reasonable and necessary. In the case of this petition, the industry uses both unstaffed and staffed spray coating operations and has developed protocols to address the health and safety of their employees. Therefore, Board staff supports considering a standard that would permit recirculation of exhaust air at unstaffed and staffed spray coating operations when the following conditions are met;

- 1) The proposal conforms to current national consensus standards,
- 2) The proposal mandates effective control of hazards to ensure the safety and health of affected employees equivalent or superior to requirements under 29 CFR 1910.107(d)(9).

Board staff feels that there may well be effective means available to employers that will ensure worker protection from exposure to hazardous chemicals during spray coating operations where exhaust air is recirculated. For example, the use of supplied air respirators would provide far superior protection over the commonly used air purifying respirator. Additionally, positive pressure suits worn by workers inside the spray booth can effectively safeguard against exposure to hazardous components of spray coatings.

Board staff feels that an advisory committee, with representation from both labor and management and with the assistance of subject-matter experts in the field of spray coating

operations, would be an appropriate means to determine whether there is a necessity for changes to the current standard as proposed by the Petitioner.

#### CONCLUSION AND ORDER

The Board has considered the petition and the recommendations of the Division and Board staff. For reasons stated in the preceding discussion, the petition is hereby GRANTED to the extent that Board staff is to convene a representative advisory committee to consider the Petitioner's recommendations. The Petitioner should be invited to participate in the committee deliberations.