



Spray Application Utilizing Flammable or Combustible Materials and Laminating Adhesives

Pennsylvania Lumbermens Mutual Insurance Company, utilizes NFPA 33 as the source standard when reviewing the spray application of flammable or combustible materials. NFPA 33 is the basis for the position that PLM has taken regarding the application of flammable adhesive glue that is utilized in cabinet making operations. (Flammable glue that is typically used for the application of plastic laminated materials to cabinets or base counters is commonly referred to as “Red Glue”). When evaluating gluing or laminating operations, or any other operation that involves spraying of flammable or combustible materials, the methods to control this fire hazard should be consistently applied. This Technical Services position paper will outline the method/s of controlling the hazard of solvent-based glue spraying.

In an effort to provide a variety of methods to control this hazard, a number of environmental control options are available. There are three basic control methods that shall be applied when evaluating this fire hazard. This position paper will not restate the National Fire Protection Association standard, but will rather be a review of viable alternatives that customers can evaluate for their own specific gluing operations.

The first and easiest method to control the hazard of flammable vapors when gluing, is to replace the material with a non-flammable product. In the case of “Red Glue”, an appropriate recommendation would be to change the glue to a water-based product. There are a number of products on the market that are viable alternatives that have performance characteristics that are equal to or better than the traditional solvent based “Red Glue”. The new glues that have been developed in the last five years have performance characteristics that meet or exceed those of “Red Glue”. It has been noted that customers are reluctant to use these products. This attitude has resulted because past experience has been with older products and prior relationships with existing glue sales personnel. Sales persons, who do not have newer technology glues, are not supportive of switching glues when asked by customers about water based alternative products. (An additional note, that is sometimes surfaced by sales personnel, is water based products are generally double the expense. The discussion generally does not include the fact that the glue is almost 50% vs. 20% solids and covers up to a three times larger surface area).

The second method of controlling the flammable solvent spray hazard of gluing operations is to locate the spraying operations within a spray-finishing booth. The spray booth should be of standard non-combustible construction. The booth should have an exhaust fan capable of developing a 125cfm surface velocity at the mouth of the booth and should be protected by an automatic sprinkler system. All of the wiring and lighting fixtures and devices inside and within 10 feet of the booth should be explosion proof. No source of ignition including heated or warm surfaces in excess of 100 degrees should be within 20 feet of the booth.



The third method of controlling glue solvent vapors is to locate all spraying operations within a spray room. The room has many of the features that a spray booth should have but is generally large enough for accounts to move large and unusual items to be glued in and out of the room. The room should have non-combustible walls and ceiling, it should have remote lighting fixtures mounted behind wired glass panels in the ceiling or wall areas, and should have all sources of ignition removed from the room. In addition, the room should have exhaust ventilation that is provided with a motor and wiring assembly that is listed as being explosion proof and the room should be protected with heavy self-closing metal doors.

This overview and presentation of viable alternatives to spraying of flammable glue, is presented as a field inspection guideline that is to be applied when reviewing gluing operations that are present in cabinet shops and production furniture manufacturing operations. The intent of this position paper is to give practical alternatives to our customers and outline the position of PLM as it relates to gluing operations. When a customer is not following one of the outlined strategies, essential recommendations should be developed, discussed, and forwarded for compliance.

If you need additional information regarding the application of this position, please contact the territory Technical Services Representative or the AVP of Technical Services, Randy Zellis at 215-625-9233x638.