

### **30 Burns---Inspection #1330906 M & D Coatings**

A **52 year old male** was fatally injured when he was **burned** due to a flash fire inside a 23' long x 6' diameter stainless steel tank. The company was contracted to restore a stainless steel tank so that it could be returned to the dairy process as a Sugar Tank. At the time of the incident, an employee was spray applying a food grade lining system (Carboline Plasite 7133) inside the tank.

Employees sandblasted the inside of the tank two days prior to the incident and "spot blasted" the interior of the tank the morning of the incident. Employees mixed two parts of the lining system (Plasite 7133 Part A and Plasite 7133 Part B; both category 2 flammable liquids) in a bucket then poured the mixture in the "spray pot" for application. Employees were supplied air respirators when applying the Plasite 7133 inside tanks and negative pressure/exhaust ventilation was provided by a 12" diameter flexible duct positioned at the opening of the tank. The duct traveled along the outside length of the tank, then up & through a wall opening where it was attached to an in-line duct booster fan and then to a pneumatic-powered Coppus fan.

It was determined that the entry into the tank was made under the company's confined space program and non-entry rescue was implemented at the site. A gas monitor was onsite and used to conduct periodic monitoring; continuous monitoring during permit-required confined space work was not done.

The occurrence of a flash fire indicated that a vapor-to-air concentration at or above 10% of the chemical mixture's LEL found an ignition source. Because the atmosphere inside the tank was at or above 10% of the LEL, the employee was working in an IDLH atmosphere.

The investigation revealed that the victim took a non-intrinsically safe light into the tank while he was painting and the heat from the light ignited the flammable vapors resulting in the flash fire. Management stated that an intrinsically safe light was onsite at the time of the incident but, for unknown reasons, the victim grabbed the wrong one.

#### **Citation(s) as Originally Issued**

A complete inspection was conducted at the accident scene. Some of the items cited may not directly relate to the fatality.



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**Citation 1 Item 1d**

**Type of Violation: Serious**

**\$0**

**29 CFR 1910.134(d)(2)(i) :** The employer did not provide either a full face piece pressure demand CUA certified by NIOSH for a minimum service life of thirty minutes or a combination full face piece pressure demand supplied air respirator with auxiliary self - contained air supply for employee use in IDLH atmospheres:

[Referenced by 29 CFR 1926.103]:

In that the employer did not provide an employee with either a full face - piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes or a combination full face-piece pressure demand supplied- air respirator with auxiliary self-contained air supply for employee use, inside the approximately 23' long X 6' diameter stainless steel tank while performing spray application of Carboline Plastice 7133, a category 2 flammable liquid. In the absence of air monitoring, data and/or a reasonable estimation of the atmosphere inside the tank, the atmosphere was IDLH per the respirator protection standard 29 CFR 1910.134.

**Citation 1 Item 1e**

**Type of Violation: Serious**

**\$0**

**29 CFR 1910.134(f)(2):** Employee(s) using a tight-fitting face piece respirator were not annually fit tested:

[Referenced by 29 CFR 1926.103]:

In that annual fit testing was not provided in calendar years 2017 or 2018 to an employee required to use a 3M half mask air-purifying respirator while performing spray application of a Carboline Plasite 7133, a Category 2 flammable liquid inside an approximately 23' long by 6' diameter stainless steel tank .

**Citation 1 Item 2**

**Type of Violation: Serious**

**\$4000**

**29 CFR 1926.1204(b):** The employer did not identify and evaluate the hazards of permit spaces before employee enter them:

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In that the hazards of the permit space were not effectively evaluated for the spray application of Carboline Plasite 7133, a category 2 flammable liquid, inside an approximately 23' long by 6' diameter stainless steel tank in the following instances:

- a. Carboline Plasite 7133, a Category 2 flammable liquid, was in excess of 10% of its lower explosive limit (LEL); therefore, exposing an employee to atmospheric and physical hazards; and
- b. An employee was exposed to an immediately dangerous to life or health (IDLH) atmosphere as a result of a hazardous chemical at or above 10% of its lower explosive limit (LEL).

**Citation 1 Item 3a**

**Type of Violation: Serious**

**\$4000**

**29 CFR 1926.1204(c)(1):** The employer did not implement means, procedures, and practices in specifying acceptable entry conditions:

In that the employer did not implement means, procedures, and practices that specified acceptable entry conditions for an employee performing spray applications of Carbone Plasite 7133, a category 2 flammable liquid inside an approximately 23' long by 6' diameter stainless steel tank.

**Citation 1 Item 3b**

**Type of Violation: Serious**

**\$0**

**29 CFR 1926.1204(c)(4):** Purging, inerting, flushing, or venting the confined space was not conducted by the employer as necessary to eliminate or control atmospheric hazards:

In that the employer did not provide ventilation adequate to control atmospheric hazards for the spray application of Carboline Plasite 7133, a Category 2 flammable liquid, inside an approximately 23' long by 6' diameter stainless steel tank.

**Citation 1 Item 3c**

**Type of Violation: Serious**

**\$0**

**29 CFR 1926.1204(c)(7):** The employer did not verify that conditions in the permit space were acceptable for entry throughout the duration of an authorized entry:

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In that the employer did not verify that conditions were acceptable throughout the entry for an employee performing spray application of Carboline Plasite 7133, a Category 2 flammable liquid, inside an approximately 23' long by 6' diameter stainless steel tank.

**Citation 1 Item 4**

**Type of Violation: Serious**

**\$4000**

**29 CFR 1926.1204(d)( 5 ):** The employer did not provide lighting equipment that meets minimum illumination requirements in 1926.56, that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present and that is sufficient to enable employees to see well enough to work safely and to exit the space quickly in an emergency:

In that an employee performing spray application of Carboline Plasite 7133, a Category 2 flammable liquid inside an approximately 23' long by 6' diameter stainless steel tank was provided with a non-intrinsically safe light at the work place. The flash fire which occurred was most likely caused when heat from the light ignited the flammable vapors inside the confined space.

**Citation 1 Item 5**

**Type of Violation: Serious**

**\$4000**

**29 CFR 1926.1204(e)(2):** Atmospheric hazards were not continuously monitored and the employer did not demonstrate that the equipment for continuously monitoring was not commercially available:

In that the employer did not ensure that atmospheric hazards were continuously monitored for an employee performing spray application of Carboline Plasite 7133, a Category 2 flammable liquid, inside an approximately 23' long by 6' diameter stainless steel tank.

**Citation 1 Item 6**

**Type of Violation: Serious**

**\$800**

**29 CFR 1926.1205(f) :** The entry employer did not retain each canceled entry permit for at least 1 year to facilitate the review of the permit required confined space program required by§ 1926.1204(n). Any problems encountered during entry

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operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made:

In that the employer did not retain the entire cancelled M & D Coatings, Inc. Confined Space Entry Permits for the permit-required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation1 Item 7a**                      **Type of Violation: Serious**                      **\$800**

**29 CFR 1926.1206(d):** The entry permit did not include the authorized entrants within the permit space, by name, or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space:

In that the name of the authorized entrant was not recorded on the cancelled M & D Confined Space Entry Permits for the permit-required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation 1 Item 7b**                      **Type of Violation: Serious**                      **\$0**

**29 CFR 1926.1206(e):** The entry permit did not include means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working:

In that the means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working was not recorded on the cancelled M & D Coatings, Inc. Confined Space Entry Permits for the permit required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation 1 Item 7c**                      **Type of Violation: Serious**                      **\$0**

**29 CFR 1926.1206(h):** The entry permit did not include the hazards of the permit space to be entered:

In that the hazards of the permit space to be entered were not recorded on the cancelled M & D Co. Coatings Inc. confined entry permits for the permit-required entries that occurred from 05/01 /2018 - 05/05/2018 .

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**Citation 1 Item 7d**                      **Type of Violation: Serious**                      **\$0**  
**29 CFR 1926.1206(i):** The entry permit did not include the acceptable entry conditions:

In that the acceptable entry conditions were not recorded on the cancelled M & D Coatings. Inc. confined space entry permits for the permit-required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation 1 Item 7e**                      **Type of Violation: Serious**                      **\$0**  
**29 CFR 1926.1206(l):** The entry permit did not identify rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services:

In that rescue and emergency services to be summoned were not recorded on the cancelled M & D Coatings. Inc. Confined Space Entry Permits for the permit-required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation 1 Item 7f**                      **Type of Violation: Serious**                      **\$0**  
**29 CFR 1926.1206(m):** The entry permit did not include the communication procedures used by authorized entrants and attendants to maintain contact during the entry:

In that the communication procedure was not recorded on the cancelled M & D Coatings. Inc. confined space entry permits for the permit-required confined space entries that occurred from 05/01/2018 - 05/05/2018.

**Citation 1 Item 7g**                      **Type of Violation: Serious**                      **\$0**  
**29 CFR 1926.106(n):** The entry permit did not include equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard:

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In that personal protective equipment, testing equipment, and rescue equipment were not recorded on the cancelled M & D Coating, Inc. confined space entry permits for the permit-required confined space entries.

**Citation 1 Item 8**                      **Type of Violation: Serious**                      **\$4000**

**29 CFR 1926.1207(c):** Training did not establish employee proficiency in the duties required by this standard:

In that training did not establish employee proficiency in the knowledge and skills necessary for the safe performance of the duties required by the standard for employees working in and around a permit-required confined space while Carboline Plasite 7133, a category 2 flammable liquid was applied to the inside of an approximately 23' long by 6' diameter stainless steel tank.

**Citation 1 Item 9**                      **Type of Violation: Serious**                      **\$4000**

**29 CFR 1926.1210(b):** The entry supervisor failed to verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin:

In that the employer did not ensure that the following entries listed on the Confined Space Entry Permit were verified prior to entry for all employees working in and around a permit-required confined space while Carboline Plasite 7133, a Category 2 flammable liquid, was applied to the inside of an approximately 23' long.

- a. Rescue procedures
- b. Training verification on all persons entering the confined space, all persons acting as the entry supervisor, all persons assigned as backup positions, all persons assigned to monitor access and interior activities and all person assigned to emergency rescue :
- c. Safety harness:
- d. SCBAs:
- e. Protective clothing;
- f. fire extinguishers ;
- g. Life lines;
- h. hoisting equipment
- i. communication equipment



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- j. Airline respirators and
- k. Electrical gear rating

**Citation 1 Item 10      Type of Violation: Serious      \$700**

**29 CFR 1926.1211(c)(1):** Each authorized entrant did not use a chest or full body harness with a retrieval line:

In that the employer did not ensure that an employee performing spray application of Carboline Plasite 7133, a Category 2 flammable liquid, inside an approximately 23' long by 6' diameter stainless steel tank used a chest or full body harness with a retrieval line for non-entry rescue purposes.

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