



Department of Commerce

Division of State Fire Marshal
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Safety Advisory for Events Using Colored Powder, such as Color Runs

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With spring having arrived and summer fast approaching, many events are being planned and hosted throughout the State of Ohio where bursts of colored powder are sprayed or thrown onto event participants, including “color runs” or concerts. While these events are not directly regulated by the Ohio Fire Code, hidden dangers do exist that event coordinators and participants should be aware of.¹

Most commonly, the powder mixtures used at such events are comprised of cornstarch and a coloring agent – such as food coloring or paint. Colored cornstarch, in its powder form, is not normally combustible. However, when aerosolized (or sprayed) it is considered a “combustible dust” and can explode under the right circumstances and conditions. If the dust particles are the right composition and size, and the dust cloud is dense enough in an enclosed space, a fire or an explosion can occur if an ignition source is present.

Typically, an ignition source is the missing element necessary for an explosion at a colored powder event. However, situations do arise where ignition sources are present or introduced by unwitting event coordinators or participants. Ignition sources can include electrical equipment (such as stage lighting and musical equipment), flames and sparks (from food vendors and others), hot surfaces, cigarette lighters or matches, and even static electricity. All of these can produce

¹ Although colored powder events do not require a permit under the Ohio Fire Code (OFC), the OFC does apply at such events and the fire code official does ultimately maintain authority to make sure such events are safe for the public. Furthermore, it is incumbent upon event organizers to ensure public safety at their events and to not create situations that may be hazardous for event participants and coordinators. Event officials should consult with their local fire departments prior to such events to ensure basic safety measures are instituted and adhered to so that hidden dangers can be avoided.

enough of an ignition source to ignite a cloud of combustible dust. Therefore, the colored powdered dust should not be sprayed or distributed in areas where ignition sources are present.

For example, in June 2015, colored powder was sprayed over a crowd of concert goers at a popular amusement park in New Taipei, Taiwan. The dense cloud of colored powder, a mixture of cornstarch and food coloring, suddenly ignited and caused a large fire that killed 15 and injured over 500 others, many severely. It is believed that either lighting equipment or a lit cigarette created the spark that started the combustion of the dust.

In the wake of these and other events, the Ohio Department of Commerce, Division of State Fire Marshal encourages certain basic safety precautions to be employed. These include, but are not limited to, the following:

- No smoking at the events, and particularly not in areas where the colored dust will be dispersed
- No powder disbursement in enclosed areas (the denser the cloud of powder, the more readily combustible it is; disbursing the dust in an open, well ventilated area where the dust can dissipate is best)
- No electrical devices or equipment in powder disbursement areas (sparks from electrical equipment and even heat from such equipment like stage lighting fixtures can be sufficient enough to ignite a combustible dust cloud)
- No electrical devices or equipment should be used to distribute the powder
- No powder disbursement in areas where lights and/or electrical equipment are in use (not only should electrical equipment not be in use in disbursement areas, but the powder should not be disbursed in areas where such equipment is present or where the dust can migrate to these heat sources)
- A gap or “dead space” between stages and the public should be created
- The use of powder mixtures containing 15% baking soda are encouraged (using this composition helps to extinguish a fire if one should occur)

Although most of the events using colored powder are fun and safe, event coordinators and participants should be aware of the potential dangers and should take steps to avoid them. Instituting these simple, safety practices, and others, will help ensure a fun and safe experience for all participants and event coordinators.

This Technical Bulletin is intended only as an informational tool. Affected individuals and code enforcement officials should consult their legal advisor to determine specific requirements, their applicability, and courses of action that should be taken to ensure compliance with all applicable requirements and standards.