

# **Suspended Fabric & Plastic Film Partitions for COVID-19 Separations**

## **Background**

Facility owners are inquiring about the use of partitions to provide separations or barriers as a precaution against COVID-19 spread. Certain types of materials used in partitions increase the fire safety risk, specifically plastic and fabric materials. This information sheet applies to non-rigid suspended fabric or plastic film partitions. [Click here](#) for information on rigid partitions or barriers.

## **Plastic materials**

Plastics come in three physical forms:

- Rigid or solid
- Foam
- Flexible (films, sheets, fabrics, etc.)

## **Fabric materials**

Many modern fabrics contain large amounts of plastics. If the fabric uses synthetic materials (polyester, rayon, nylon, etc.), they are made partly or entirely from plastics. Modern fabrics made entirely of natural materials — like cotton, wool, silk, or linen — are somewhat rare.

## **Flexible plastics**

Flexible plastics come in a wide range of products, from synthetic fabrics to garbage bags. Flexible plastics are easy to ignite with a small heat source and spread rapidly, especially in a vertical position. Common flexible plastics include polyethylene and polypropylene, although PVC can be made flexible with the addition of a plasticizer during the manufacturing process.

## **Rigid or solid plastics**

Rigid or solid plastic materials are the most difficult to ignite; it typically takes a significant amount of heat to cause these plastic materials to burn, but once they catch fire, they burn very hot and give off some very toxic smoke and gases. Common examples of rigid plastic materials include acrylic (polymethyl methacrylate or PMMA), polycarbonate, and polyvinyl chloride (PVC). [Click here](#) for information on rigid materials used for COVID-19 partitions or barriers.

## **Foam plastics**

Foam plastics are often used as insulation materials. They are fairly easy to ignite, even with a small heat source. They burn very rapidly and give off extremely toxic smoke and gases. Common examples are polyurethane and polystyrene (Dow Chemical's Styrofoam is a type of polystyrene). [Click here](#) for information on foam plastics used for COVID-19 partitions or barriers.



# Minnesota Department of Public Safety State Fire Marshal Division

## Fire and life safety concerns

Plastics are often a petroleum-based product and can burn very fast and hot. When exposed to heat, these materials can also melt and drip, causing burns to people. The same is true for fabrics containing large amounts of plastics.

## Fire/building code requirements for suspended fabric and plastic film partitions

In most occupancies, suspended plastic films and fabrics are required to meet certain fire performance tests. Reports of those tests should be furnished by the manufacturer. Here are the three performance test options:

- National Fire Protection Association (NFPA) Standard 701 – Test Method 1 (used for thin fabric materials – 21 oz. per sq. yard or less).
- NFPA 701 – Test Method 2 (used for thicker fabrics – greater than 21 oz. per sq. yard and all plastic films).
- NFPA 289 – Using a 20-kilowatt (kW) ignition source with a maximum rate of heat release of 100 kW.

## Quantity of suspended plastic film and fabric partitions

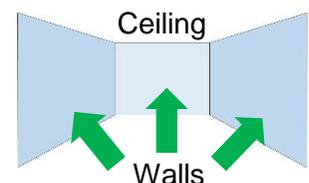
The following are the quantity limits of suspended plastic films and fabrics if they have passed one of the tests outlined above:

- Assembly auditoriums with sprinkler protection: 75 percent of the wall area.
- Assembly auditoriums without sprinkler protection: 20 percent of the wall area.
- Existing assembly occupancies (such as restaurants, bars, places of worship, museums, libraries and recreation buildings): no limit when they comply with one of the tests above.
- Fabric partitions (but not plastic materials) in assembly, business, office, educational, retail and mercantile occupancies: no limit when they comply with one of the tests above
- Materials used for window coverings and treatments (draperies, fabrics, hangings, valances, etc.): no limit when they comply with one of the tests above.

## How is this measured?

Wall surface area is shown in the diagram in blue. Measure the wall or ceiling area that the partition or hanging is attached to and multiply it by the surface area allowed above (75 percent, 20 percent, etc.).

Note: The fourth wall is not shown in the diagram.



## What does this mean for purchasing plastic films and fabrics for partitions?

Use fire retardant materials or those that comply with one of the NFPA test methods outlined above.

## Installing partitions

When installing these fabric or plastic partitions in buildings with a fire sprinkler system, keep these materials at least 18 inches below the sprinklers so that the sprinklers can be effective.

**More information:** Email the State Fire Marshal Division Fire Code Team at [fire.code@state.mn.us](mailto:fire.code@state.mn.us). Visit [sfm.dps.mn.gov](http://sfm.dps.mn.gov) for the latest updates to this information.

