



Dust fire / Explosion

Dust fire/explosion refers to the ignition and explosion of airborne dust.

* The cause of a dust explosion/combustion is reaching the lower explosive limit and ignition energy of airborne powder. Commonly practiced powder coating exceeds the lower explosive limit at the spray gun tip. Accordingly, an explosion/combustion occurs when the ignition conditions are fulfilled.

Nevertheless, the minimum ignition energy of powder paints is between 10 and 100 mJ. This is far higher than that of organic solvent gases of solvent base paints, which is 0.1 mJ or less. Consequently, powder paints are theoretically safe.

Spray guns currently available on the market generally have stored energy of 5 mJ or less. That said, short circuit-like ignitions may occur when static electricity is accumulated due to grounding failure of the substrate or other causes.

Q1:

Is the spray gun abnormally close to the substrate?

A1:

Adjust to an appropriate spray gun distance.

Q2:

Is grounding provided adequately?

A2:

Provide adequate grounding for the substrate, paint booth, and hangers.

Q3:

Is any item that could be a source of ignition carried into the paint booth during coating?

A3:

Avoid carrying any source of ignition into the paint booth.

Q4:

Has the airflow rate of the collector decreased?

A4:

Inspect and repair the collector.