







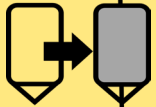

How to Reduce Exposures When 3D Printing with Plastic Filament

It is important to know how to reduce or avoid exposures when printing by:

- Fused Filament Fabrication (FFF)
- Fused Deposition Modeling (FDM™)
- Fused Layer Modelling (FLM)

Heating plastics during these types of printing processes releases small particles and gases that might raise concerns for health risks to the lungs, eyes, and skin. Several basic precautions can help minimize risks.

Easy Ways to Reduce Exposures

| | | | |
|--|--|---|---|
|  | Use ventilation. |  | Print at lowest recommended temperature. |
|  | Keep the nozzle clean. |  | Air it out if the printer malfunctions. |
|  | Heat nozzle then load filament. |  | Wait before opening a closed printer. |

Wear Appropriate Personal Protective Equipment



Eye protection to prevent damage to the eyes.



N95® respirator to avoid breathing particles.



Gloves to protect hands from hot surfaces.

Avoid Touching



Moving parts



Loose or frayed wires



Go to *3D Printing with Filaments* for more information.



Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

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