

Are You Grinding And Shredding Plastics?

Plastic manufacturing is the third-largest industry in the United States. There are more than 16,000 facilities involved in some level of plastic manufacturing. Today, many plastic manufacturers are grinding and/or granulating their scrap materials in-house. The volume of plastic to be recycled will determine the size and type of equipment needed. Companies may choose small portable self-contained grinders, which have many safety protections built into them. They may also choose larger units that require specialized dust collection and fire protection systems.



Property Controls and Life Safety Concerns for Plastic Recycling

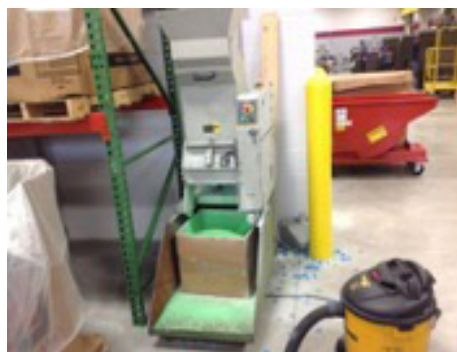
Dust Control – Dust is a major concern with plastic recycling machines. It's important to control the dust generated in the grinder, as well as the discharged dust.

- Plastic dust is considered a combustible dust under NFPA 652.
- OSHA also has a Combustible Dust National Emphasis Program.
- Units should be self-contained, if possible, to minimize dust leaking out of the system.
- The area around the recycling machine should be cleaned daily.
- Only explosion-proof vacuums approved for dust removal should be used, according to NFPA 654. The vacuum should have an anti-static hose approved for combustible environments. **Standard shop vacs are not acceptable!**



Correct Vacuum

- Venting should be directed outside of the building or to a safe area and not back to employee workspaces.
- Recycled material should be put in an enclosed container, not an open container, to control nuisance dust.

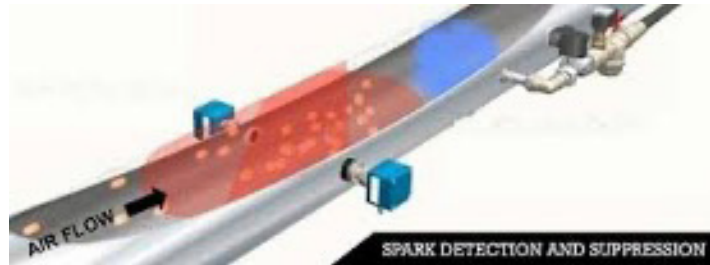


Unacceptable Shop Vacuum

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Explosion and Fire Prevention – Plastic dusts can be very volatile.

- Dust collectors should be located outside of the building, if possible.
- Properly-designed ventilation is critical to control explosion hazards.
- If your dust collector must be inside, electrical equipment in the area should be explosion proof.
- Any tools used in the area around the dust collector should be explosion proof.
- Dust collection systems should be equipped with static discharge to control sparking.
- Built-in spark detection and fire-suppression systems should be installed to detect sparking and automatically discharge water or another agent to put out a small spark/fire.



Health and Safety Concerns for Plastic Recycling

Health and safety are often overlooked in the selection of plastic shredding equipment. When installing plastic grinding units, consider these hazards:

Noise Control – Plastic grinding or recycling machines can be noisy. There are many ways to reduce the noise exposure to employees, including:

- If possible, isolate the unit in a room away from employees.
- Work with the manufacturer to determine the best noise dampening solutions.
- Install noise dampening barriers, blankets, or curtains.
- Consider personal protective equipment for employees, such as earmuffs and ear plugs.

Machine Guarding – Machine guarding and maintenance are critical with plastic grinding machines.

- Small machines should have standard operating procedures and only trained personnel should be allowed to use them.
- Feeder shoots should be properly guarded so employees can't reach grinding knives.
- All pinch points, gears, sprockets, chains, and belts must be properly guarded during operation.
- Both large and small machines should have lockout-tagout procedures developed for maintenance and repairs.