

DECEMBER 2005

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Sponge-Based Technology Can Cut Cleaning Downtime

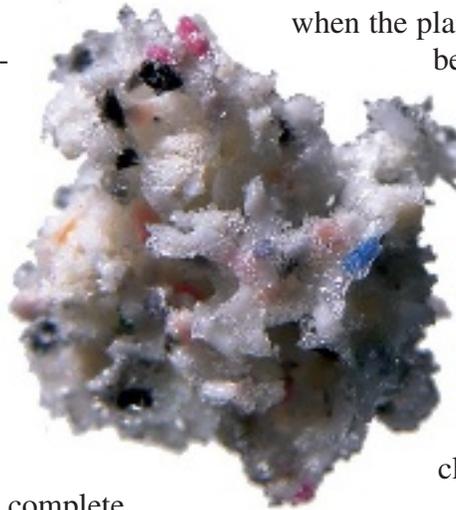
By Michael T. Merritt, President, Sponge-Jet, Inc., Portsmouth, NH

While the lifespan of most manufacturing facilities can be 50 years or more, the lifecycle of coatings on surfaces that make up plants' interiors is a fraction of that. The traditional approach used to address damaged or deteriorated coatings on walls, ceilings or machinery involves blasting with abrasives such as steel, sand, copper slag, walnut shells, corn-cob particles, frozen nitrogen pellets or high-pressure water.

Most of these processes normally halt production in the area. Non-movable machinery is wrapped to guard from infiltration of dust particles or water. During abrasive blasting, pressurized equipment is used to hurl particles of silica sand, slag, water beads, or other materials at the surfaces.

The resulting impact releases fractured abrasives, contaminants, and layers of paint into the air as dust. The substrate is laid bare. Dust from the blast is considerable and must be allowed to settle before the work can be inspected.

When the job is complete, dust and particles are vacuumed up. Building surfaces may need to be wiped several times before machinery may be unwrapped. Machinery often must be wiped several times and vacuumed before operation. Traditional high-pressure blasting works best



when time is not an issue as when the plant is scheduled to be shut down for an extended period of time.

A new approach to coating removal involves using sponge media. This is a process that bonds standard abrasives (or cleaning agents)

In the sponge-media cleaning process, standard abrasives are bonded to reusable urethane foam.

into reusable urethane foam, allowing the user to obtain profiles of less than .25 up to 4 mils.

Sponge media makes it practi-

cal in many circumstances to do aggressive cleaning work while manufacturing continues, thus cutting downtime or freeing planned downtime for other projects. Since abrasives are bonded to sponge, contaminants and layers of paint (and the abrasives) are entrapped rather than turning into airborne dust. The contaminants and blast media simply fall to the floor to be swept up. With as much as 99.9% less airborne dust, temporary curtains may be used to cordon off the area under maintenance. Moreover, sponge media may be fed through a recycler and reused 10 or more times.

Sponge media blasting can also be tailored to meet almost any specification. This is accomplished by operating the equipment at various pressures and

selecting a sponge media that will produce the desired results. The most aggressive sponge blast can remove thick or brittle coatings and leave a nice “tooth” in metal for paint adhesion. Sponge media blasting is also capable of more delicate cleaning operations.

Even when plant productivity is not a factor in cleanup, it may pay to investigate alternatives to conventional media blasting and chemical cleanup.

A recent U.S. Navy study, for example, compared the use of sponge-media blasting and chemical stripping on large-scale degreasing and paint-stripping projects. The study was based on a 20,000-sq.-ft. application that examined labor costs, chemical strippers and sponge media costs, hazardous waste disposal costs, water purchase costs, and water treatment costs.

The results of the study showed that sponge-media blasting cost 46% less than chemical stripping. The only area in which sponge media blasting was shown to cost more than chemical stripping was cost of materials. In this case, chemical strippers cost 80% less

than sponge media blasting. However, with sponge media, key savings were realized in labor costs (89% less), hazardous waste disposal (94% less), and water purchase and treatment (about 31% of the total project’s cost versus zero for sponge-media blasting).

The study also showed that the use of sponge media for cleaning increased compliance with federal and state mandates due to the elimination of VOCs, hazardous air pollutants (HAPs), and reduction of organic wastes. Reporting and recordkeeping requirements under the Clean Air Act Title V Operating Permit and other programs were also either reduced or eliminated.

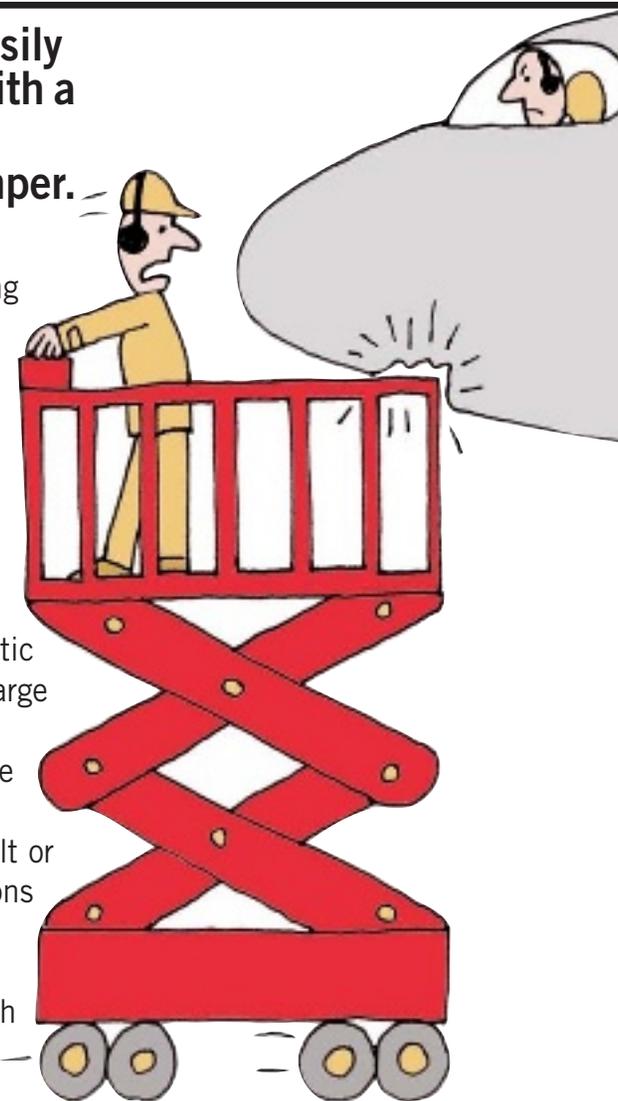
Although sponge-media blasting contractors are not present in every city as of this writing, many are willing and accustomed to traveling within a broad geographical region to perform cleaning or de-painting tasks. Also, most media abrasive manufacturers are able to share lists of trained professionals in specific regions. ■

Sponge-Jet, Inc.

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