

Recycled Glass for Shot Blasting Caen Hill Locks, Kennet and Avon Canal

Background information

Caen Hill Locks are located to the west of Devizes, Wiltshire on the Kennet and Avon Canal in the United Kingdom. Within a distance of 2 miles, there are 28 staircase locks, each stacked almost one on top of the next. Beside each lock is a large pool, rich in wildlife, where canal boats wait their turn to use the locks.

After falling into disuse in the early 1950's, the locks were restored and reopened in 1990. Since that time British Waterways has had to repaint the lock arms (balance beams) and ground paddle standards annually to ensure the locks remain in good repair. British Waterways needed a quality shot blast abrasive which could safely and effectively be used near the canal to remove previously applied layers of paint to enable a more durable coat to be applied.

Aim of the work

The aim of this work was to strip multiple layers of paint from the lock arms and ground paddle standards on 28 locks with the minimum environmental impact. There were concerns about the possibility of spent abrasive falling into the canal and glass was the preferred blast media as it met British Waterway's strict Environmental Code of Practice. The work was undertaken by Barnes Blasting Limited, Devizes.

Technical data

Glass grit – made from recycled glass – is increasingly being recognised as a safe, environmentally responsible and cost effective alternative to the traditional abrasives used by the shot blast industry. Grit blast abrasives are used to clean and prepare a wide range of materials. This is achieved by firing the granular or powdered abrasive at the material using

high-pressure air or water. Glass grit can remove paint and corrosion from steelwork, clean masonry, renovate equipment and restore woodwork as effectively, and in some cases more successfully, than traditional abrasives such as copper slag, olivine, garnet or stonegrit.

Barnes Blasting used a recycled shot blast abrasive graded between 0.75 and 1 mm (medium) for this application. It took a two-man team 9.5 days to clean and repaint the 504m² of steel (18m per lock). A 3/8" nozzle was used on standard blasting equipment at a pressure of 100 psi. The job used 9.5 tonnes of glass grit blasting media.

Results and benefits

Standard blasting equipment was used for this process. The residual paint and corrosion was easily removed from steelwork and a Sa 2_{1/2} finish was achieved. The use of glass grit also has environmental benefits as it is a non-toxic inert material that does not contain the heavy metal residues that feature in some other media. An additional benefit is that glass grit has a lower bulk density than traditional materials and so there are more glass particles per unit weight.

Financial information

The glass grit used on the project cost around £712.50. No additional disposal costs were incurred as the spent glass grit could be safely left on the ground.

Conclusions

The use of glass grit enabled British Waterways to undertake a blasting project in an environmentally sensitive location and to satisfy their objective of achieving an excellent surface finish. Prior to identifying glass grit as a suitable media to use British

Waterways had been unable to find an abrasive which was 'fit for purpose'. The use of sand is prohibited by Health and Safety regulations and there were concerns about the environmental impact of using a traditional abrasive such as copper slag. There is a plentiful supply of the raw material nationally, and the process does not require any major capital expenditure on new equipment. The raw material costs were comparable with those of abrasives traditionally used by the shot blast industry.

Quote from British Waterways

"We are extremely happy with the performance of glass grit. It has removed all the previous layers of paint and has left a very clean and even surface for our painting contractors to work on. It was important that we used an abrasive which was environmentally sound and glass grit has fully met our high environmental standards. We will definitely be using it again in the future."

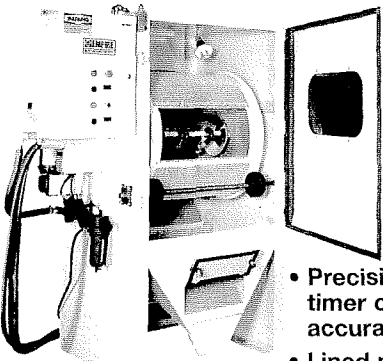
—George Meer, British Waterways Supervisor

Editor's Note: For more information on recycling programs in the United Kingdom, visit the WRAP web site at www.wrap.org.uk. WRAP's mission is to accelerate resource efficiency by creating efficient markets for recycled materials and products, while removing barriers to waste minimisation, re-use and recycling

More proof that shot peening reduces weight (and costs!) in vehicles

Are you marketing equipment or services to the automotive industry? We can help you strengthen your case for shot peening. The following is an excerpt from an article available at our online library. For the complete article, go to the Library at Education Resources at www.shotpeener.com. The name of the article is "How, When and by Whom Was Mechanical Pre-Stressing Discovered" by G. F. Bush, in collaboration with J. O. Almen, L. A. Danse and J. P. Heiss. (Library file #1962003)

Rugged Basket Blaster




With:

- 350-lb capacity
- Three oscillating blast guns that increase output and reduce power use
- 30"-dia. x 30"-long basket
- Precision speed, jog and timer controls for easy and accurate processing
- Lined media reclaimer and heavy-duty ducting

Cleans, Peens & Finishes Small Parts FAST!

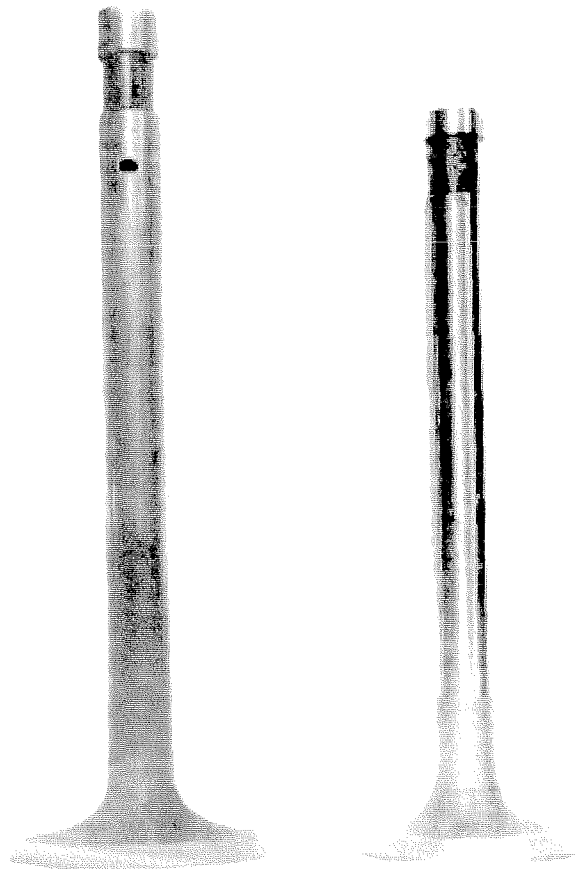
Empire Has It All!

- Blast Cabinets • Blast Rooms • Portable Blasters • Automated Blast Systems



EMPIRE
ABRASIVE EQUIPMENT

2101 West Cabot Boulevard, Langhorne, PA 19047-1893
Call: (215) 752-8800 E-Mail: Airblast@empire-airblast.com
Fax: (215) 752-9373 Visit: www.empire-airblast.com



"These valves are identical for lift, guiding and porting height. The difference in length is due to the elimination of the cotted safety hole, made possible by the more reliable shot peened valve springs. The cotter pin kept the valve from falling into the valve-in-head after spring failure."