SODA
the new abrasive?

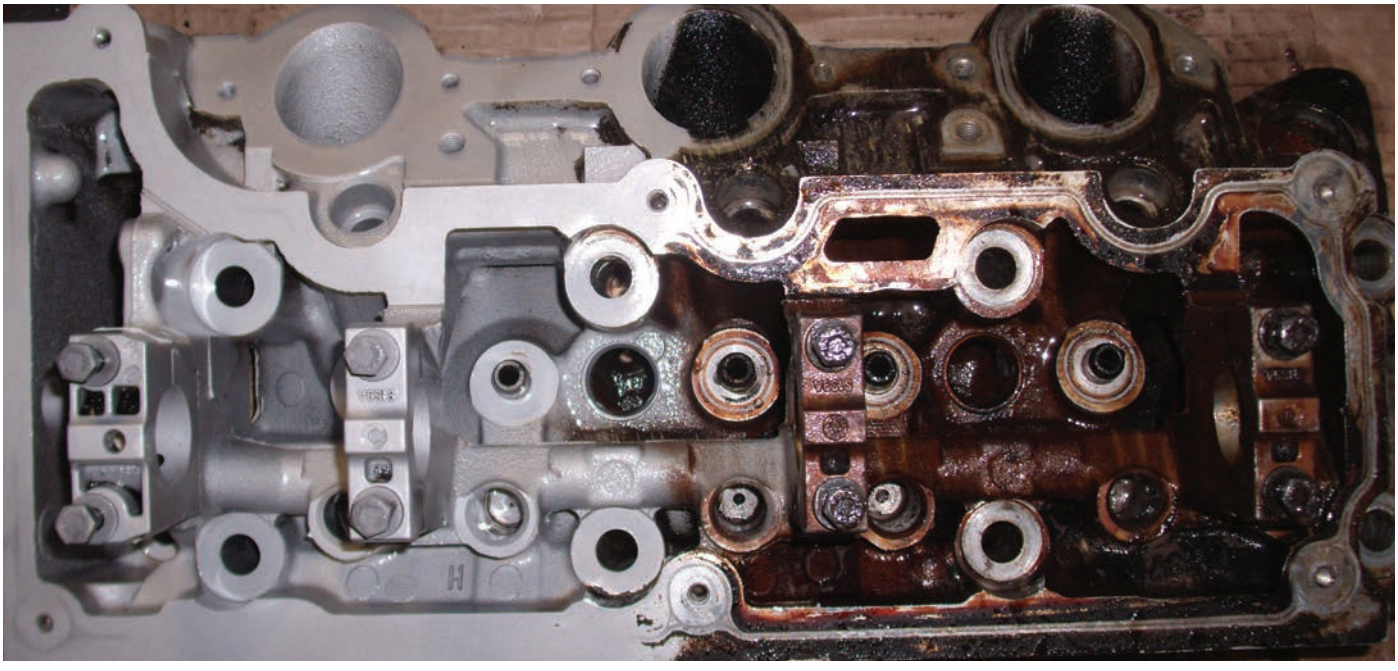
BY **MIKE MAVRIGIAN** WITH **RON STORER** AND **ROBERT ROBINSON**

The use of soda as a blasting media has been employed in various industrial applications for quite some time. Common examples include the removal of graffiti from building walls, cleaning outdoor structures such as bridges, etc. This type of blast media has been increasingly embraced within the past few years as a safe and effective cleaning media within the engine building community as well. Soda offers a relatively soft hardness of 2.2 on the mineral hardness Mohs scale and is one of the softest abrasives now being used in today's blasting equipment. The primary advantages of soda include its relatively low abrasive nature since it can be successfully used for the removal of many surface coatings while leaving the original surface finish intact, without altering surface hardness, and the low contamination factor, since soda is water soluble and allows easy removal after blasting.

ADVANTAGES OF SODA AS A BLASTING MEDIA

Unlike hard and aggressive media such as sand, baking soda (sodium bicarbonate) is able to strip to bare metal without abrading the parent surface depending on pressure. Soda media is "softer" than other types of media and is "friable," which means that the soda crystals break-down upon impact (akin to throwing a snowball against a brick wall as opposed to throwing a rock against the same wall). Essentially, soda does the job without damaging the metal depending on pressure. Because soda is "softer," and because it is water-soluble, it leaves no abrasive grit that can damage moving parts (such as hood or door hinges).

There are distinct advantages to the use of soda, instead of traditional methods using glass bead or plastic. Unlike these other media, soda easily removes surface grease and oil residue, as well as some paint eliminating the need for a pre-cleaning step. However, please note that some substances can clog dust collection systems inside of cabinets. One distinct benefit relates to cleaning an intake manifold (especially a dual plane style manifold). The danger when using glass bead (or other abrasive media) lies in the concern for particulates becoming trapped inside hidden/hard-to-reach runner areas, which could lead to disastrous results in a running engine. Since soda is water soluble, entrapment is avoided with a simple water rinse. Any potentially remaining particles (since they're not hard abrasive



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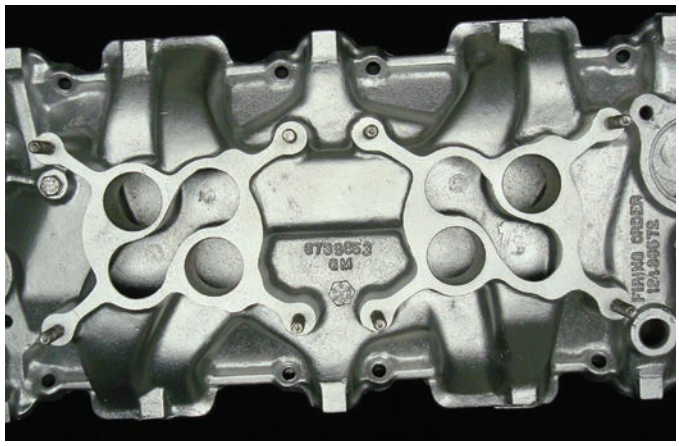
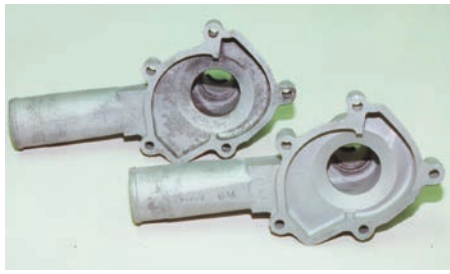


Photos on this page show before and after being blasted with soda. Courtesy ARMEX.



particles) won't pose an abrasion danger and will effectively break down during engine operation.

Soda is non-toxic and non-hazardous, making its use far safer than other abrasive or chemical stripping methods.

WHY USE SODA?

- Soda is granular, suitable for use in pressure pots or in cabinet systems.
- Soda crystals are sharp, providing outstanding cleaning/stripping performance when delivered under relatively low pressure but high velocity.
- Soda is "friable," meaning that it fractures into smaller particles. Higher blasting pressure creates more frictional heat which increases cleaning performance. Unlike other blast media, soda is relatively soft and used in many applications while maintaining the integrity of the surface you are blasting. (Moh's hardness of 2.5).
- Soda is non-toxic and non-hazardous, with a nearly benign pH of 8.2.
- Soda is water-soluble and easy to rinse clean.
- Soda leaves no abrasive "grit" that can damage moving parts.

WHY IS SODA A USEFUL CLEANING MEDIA?

Soda is sacrificial and somewhat absorbent, used only once and is not recycled, offering a clean media blast with every use, and is successful in cleaning parts containing minor amounts of moisture, fluids and oils, providing a desiccant performance during the blasting process.

As mentioned earlier, soda is soluble in almost all fluids, eliminating the concern for severe contamination. Soda is relatively inert in terms of abrasive potential and can be rinsed through the engine without the damage that would otherwise occur with a highly abrasive media. Also, once the part has been soda blasted, any subsequent rinsing process should remove any residual soda particles.

Most of the soda applications today use direct pressure for the soda delivery blasting process. This type of delivery has the ability to focus the soda pattern gaining an advantage with a higher particle count per square inch…more than any siphon delivery. Because the direct pressure delivery method has a faster abrasive speed for the blasting pressure used, the result is a reduced need for compressed air. As an example, Media Blast and Abrasive Company uses the all new GhostFlow™ soda delivery technology using direct pressure to create directional abrasive blasting using a nozzle you "point and shoot" at the part area to be cleaned. Unlike air-less abrasive delivery that uses a belt or wheel to achieve the same abrasive

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speed without the use of compressed air, directional blasting uses compressed air to produce the abrasive speed allowing you to avoid blasting areas that do not require blasting.

Direct pressure soda delivery allows you to "inject" the media into small ports or cavities in the part that's being blasted. If you are using a 1/4" pressure nozzle and blasting at 50 psi you will be using 45 to 47 cfm of compressed air each minute. For instance, placing the nozzle directly against a 3/16" part cross-drill oil hole makes the cross-drill hole the nozzle orifice and reduces the air usage to only 25 to 27 cfm of compressed air. Direct Pressure Delivery allows you to push soda into blind holes and deep pockets or even oil holes allowing a possible deep cross-drilled burr to be removed.

In summary, soda has now appeared on the market scene as an effective blasting media, offering direct benefits to the engine builder.

Using the right equipment that reduces the soda flow, pre-collects the used soda outside the dust collector and that offers many different types of daily duty cycle dust collectors is important for any soda blasting cabinet today.

Always have a conversation directly with the manufacturer of the equipment if you want the right machine the first time because 50% of the application for soda equipment resides in the dust collector and how it operates.

Look for a company offering the right machinery for your application and also offering more than one model with daily duty cycles to 100%. These will be machines built for specific operation using only soda blasting media.■

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The Blizzard Stage III Soda System from ABS Products is available in four (4) standard cabinet sizes.