Making Sense of Manufactured Sand

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Bunker sand is a common topic on many of our Turfgrass Advisory Service visits. Manufactured sand is a new term in the industry and we are asked about it frequently. This article will review the topic of manufactured bunker sand and will include resources available from the USGA on bunker sand selection.

Manufactured Sand: What Is It?

Manufactured sand is the product created when coarse sand or rock is processed in a mechanical crusher. These units are expensive and it takes a long time to produce the desired product. Typically, manufactured sand is about twice as expensive as mined sand, ignoring any difference in shipping costs.

Sand or small rock is fed into the upper end of the mechanical crusher. The new crushed sand is delivered from the bottom of the machine and is transferred via a conveyor. Image courtesy of James F. Moore, USGA.
To the naked eye, there is no way to tell manufactured sand apart from mined sand. Upon closer inspection in the lab, we have learned that most manufactured sands differ from mined sands in a couple of ways. The manufactured sand is extremely angular and has a wide particle distribution curve. These are characteristics of a sand that sets up quickly and this is what happens with the manufactured sand. Companies that manufacture sand should screen out fine and very fine particles, but sometimes they do not.

Once the mechanical crusher creates the new sand, it is sent up a conveyor to create a stockpile. *Image courtesy of James F. Moore, USGA.*

It is important to remember that just because a sand is manufactured, it does not mean that all manufactured sands are the same. Due diligence on the buyer’s part is needed and independent lab testing is suggested.

Availability of manufactured sand really comes down to a matter of cost. It is hard to believe that a golf course would be willing to pay to ship manufactured sand half-way across the country, but we have seen this happen many times. The number of sand companies specializing in golf course sand that have purchased crushing machines is increasing. Check your local sand supplier for specific information in your area.
Resources Available to You
There are numerous resources available to assist in selecting a bunker sand that is appropriate for your course and your budget. Remember that regardless of your choice in bunker sand, one or more people at your golf course are going to be disappointed with the selection. Understand this going into the decision so that all involved can be united when the negative comments come.

Selection Criteria
Seven factors need to be evaluated in the bunker sand selection process: particle size, particle shape, crusting potential, chemical reaction and hardness, infiltration rate, color, and overall playing quality. A thorough description of each of these factors is found in USGA Construction Education Director James Moore’s article, “How to Select the Best Sand for Your Bunkers” that appeared in the Jan/Feb 1998 issue of the Green Section Record magazine. It is available for online at http://www.usga.org/turf/articles/construction/bunkers/select_best_sand.html.

Accredited Labs
Many of the factors listed above need analysis from a soils lab. There are many labs to choose from. The USGA has a list of A2LA accredited soils labs that specialize in analyzing materials used on golf courses. This list is available at http://www.usga.org/turf/course_construction/physical_soil_testing.html.

Turfgrass Advisory Service Visits
USGA Green Section agronomists see most of the locally available sands in their region through their annual travels. One thing stands out. Every golf course has some segment of its golfing population that is not happy with the existing bunker sand despite the fact that this club is viewed as having “perfect” bunkers all the time by rival clubs. Perhaps this is the case because players of all ages and skills play the game and their perception of what a bunker is and how it should play is highly variable.

A Turfgrass Advisory Service visit can be helpful in setting up a protocol for clubs selecting a bunker sand. This can range from recommending where to get samples to interpreting lab results to setting up an onsite test bunker where sands can be evaluated. We also provide guidance on how to deal with criticisms when they eventually do occur.

Conclusion
Manufactured sand brings a new twist to the decision making process for clubs. However, selecting the right bunker sand not only requires due diligence in the selection process, but the ability to deal with people and manage their expectations. Best wishes to all of you and please let us know how we can be of assistance.