HELPDESK

KnowledgeBase Article 2131

Sand Usage

Guardian provides a means to calculate your Sand usage via Switch 226 #1 *"Turns the calculation of Sand Weight for Bill of Materials on or off"*. Sand Usage in Guardian is calculated using the density of the Sand along with the density of the Casting and the density of the manufactured Core(s). All three must use the same unit of measure – in the example below, "pounds" is the unit of measure. Density is therefore calculated as *pounds per cubic inch*.
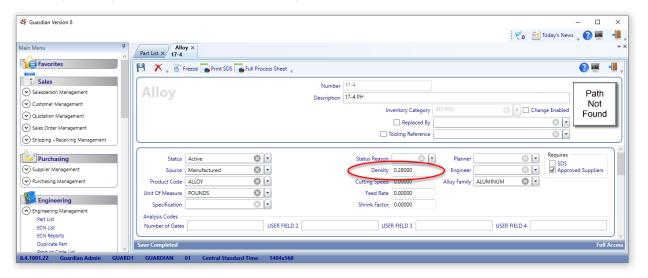
The calculation to determine the total volume of Sand:

$$
\begin{array}{r}
\text{Flask Total Volume} \\
-\ \text{Casting Volume} \\
-\quad \text{Core Volume} \\
\hline
\text{Total Volume of Sand}
\end{array}
$$

1. The Alloy Density must be recorded in the Alloy master.

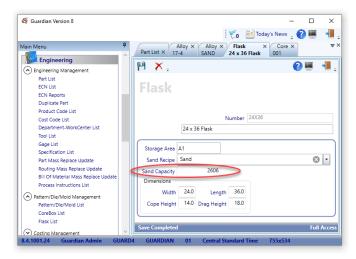support@guardiansoft.com   262.567.0341   www.guardiansoft.com

2. Sand may be entered as a "Recipe" Part type, the same as your Alloy. This allows the system to consume from, and even return sand to inventory. The Unit of Measure for the examples in this article are all *Inches* and *Pounds*. Therefore, the Sand Density is entered as *pounds per cubic inch (lbs/in^3)*.

3. On the Flask, the total Sand Capacity is the *total weight of the sand*. To calculate the total weight, find the volume (*Length* x *Width* x *Height*) and multiply by the Density of the sand from the Sand Alloy above.
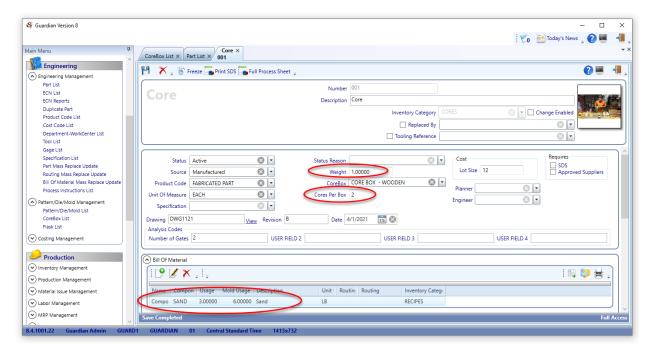
	Flask Length in inches	24
x	Flask Width in inches	36
x	Flask Height in inches	32
=	Flask Volume in square inches	27,648
x	Sand Density in lbs/in^3	0.09427
=	Total Sand Capacity in pounds	2,606.37696

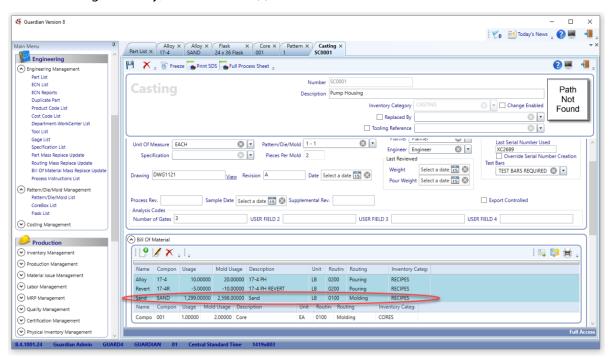This is the total amount of sand to fill the flask without the pattern and cores. (2,606 pounds)

4. The manufactured Core Weight must be entered in the same Unit of Measure as the Pattern so that its density may be calculated within the system. Sand is recorded as a Bill of Material for the Core.
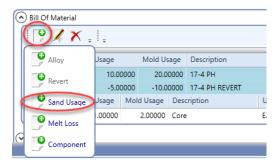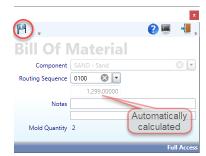

5. On the Casting, the Alloy, Sand and Core(s) are recoded within the Bill of Materials.

6. When adding the Sand to the Bill of Materials, Guardian will calculate the usage based on the data entered on the above screens. Simply select the Routing Sequence and Save the item.

7. Finally, should you wish to return Sand into inventory, enter the Sand as a negative value component in the Bill of Materials indicating the Routing Sequence where it is returned.