Levelling the playing field with compaction adjusted volume

WHAT'S THE FAIR WAY TO MEASURE ORGANIC MATERIALS?

Measurement of organic material can be a contentious issue. When selling mulch and compost products in bulk it can be hard to decide on the fairest measuring stick. Is it volume off the bucket? Or is it weighing or scanning the trailer when it's freshly loaded?

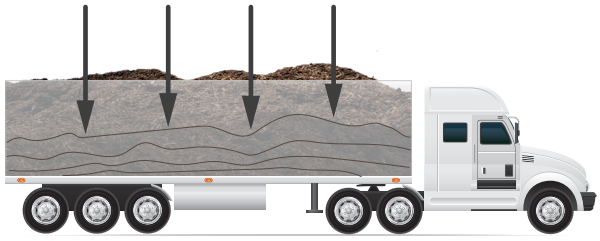
Most industry participants agree that weighing is generally the ***least*** accurate method for determining volume due to large variations in water-content and material density. But volumetric measurement methods have some challenges also...

MULTIPLE INACCURACIES WHEN MEASURING OFF THE BUCKET

Volume off the bucket will be different with every scoop depending on the operator and their technique — Their **speed and thrust** when addressing the pile, **tilt and lift technique, 'shake' or hold**, and **height of presentation and delivery into the trailer** will all affect volume measurement. So too will the travel distance to the truck, **yard terrain**, and if your operator "**bucket-presses**" for pre-compaction.

MEASUREMENT BY LOAD VOLUME SCANNING

Load volume scanning is regarded as the new industry standard for the accurate measurement of bulk organic materials — but it also has considerations. Industry consensus is that fair volumetric measurement is a scan that is performed with freshly loaded material before it leaves the yard rather than settled material on arrival. A second consideration is that every yard that is stacked on top of another compacts the material that lays beneath it thereby reducing the volume.

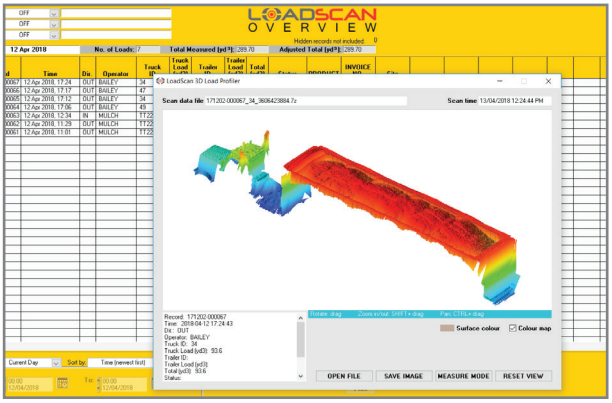


THE SOLUTION MAY BE EASIER THAN YOU MAY THINK!

Loadscan's organic material handling solutions will help you address these considerations in your business by providing:

- 3D colour profiles that provide **proof of volume at time of measurement**, and
- **Compaction Factor Adjustment** functionality (CFA)

Loadscan's clever software gives you the option to automatically apply compaction factors to each of your bulk materials depending on their compaction characteristics when loaded.



We all know that fluffy dry wood shavings have a lower compaction factor than soggy wet black mulch. Through some routine compaction studies, you can ascertain what fair compaction factors are for each of your materials. For example, you might find you get 15% compaction on a product like black mulch in a 100yd^3 truck bin, but only 10% with bark chips.

You can use your Loadscan scanner to help you establish fair, standardised compaction factors for each of your materials relative to truck bin size. By pre-setting the compaction factors for each product, your Loadscan will automatically calculate the uncompacted volume of each bulk load — it's fair for you, and fair for your customer.

A study by one of our large organics customers found the following average compaction factors for a range of products sold in 70 – 100 cubic yard trailers:

PRODUCT	AVERAGE % COMPACTION*
Soil Mix	-1%
Red Mulch	-11%
Pine Fines	-13%
Premium Mix	-15%
Bark	-16%
Black Mulch	-17%

* Note: *Compaction factors can vary largely between materials, producers and conditions and should be carefully assessed and monitored by each facility independently.*

HOW TO ESTABLISH FAIR COMPACTION FACTOR ADJUSTMENT

Here's a friendly suggestion, based on our knowledge from working with other companies like yours, on how you can establish a fair compaction adjustment for products sold in bulk:

- Select the material to be assessed for bulk-load compaction
- Determine what is your most typical bulk load size (e.g, 30 cubic yard trailer)
- Calculate how many of your loader buckets theoretically required to fill the trailer (e.g, 10 x 3 yard bucket)
- Scan an empty truck trailer to establish an empty reference scan
- Place 1 x bucket of material into the empty trailer and measure it through the scanner (record the measurement)
- Dump the one bucket load onto a concrete pad in a clear area
- Repeat this single-bucket measurement for 10 bucket loads (placing each load to the measured pile)
- Total all 10 measurements (total "A")
- Load the complete pile (10 buckets) to the truck trailer and measure the load through the scanner (total "B")
- Calculate the compaction factor adjustment (total A divided by total B) — this figure becomes your compaction factor adjustment for this material

Compaction factor assessment should be conducted for all materials. If you also load to larger truck trailers (e.g, 100 yards), you might conduct a further compaction factor study on this bin size, and create more than one bulk product category in your list of materials. For example, (a) Black Mulch >30yd Bulk (b) Black Mulch >80yd Bulk.

By using Loadscan's advanced functions you'll be able to sell your bulk mulch and compost products with confidence!

Although compaction adjusted volume is not a formally accepted measure, we believe it has the power to make bulk measurement fair. Compaction adjustments should be discussed with your bulk customers so that they understand and agree the method being used to measure out the materials they receive from you.

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