

AT ISSUE

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“Recycled” Roto Materials – What Do We Mean?



Despite being in this industry for more than 35 years, I must confess that I still don't know how to define “Recycled” rotomoulding material. I think it could mean:

- a. reprocessed off-cuts and rotomoulded scrap parts
- b. reworked purge rotomoulding material from compounding and out of spec powder, which hasn't even been moulded
- c. taking back rotomoulded products after the end of their useful life and having this material reprocessed
- d. a material that has a reasonable content of any non-rotomoulding recycled polymer in it, maybe 25% or 30%

Can these options all legitimately be considered “Recycled”? Do our customers know what they are getting when they ask for recycled material? From the perspective of an end user, I think the common assumption is that a plastic product made from recycled material has been made from a previously used product. Many rotomoulded products that are said to include recycled

material are made from reworked or reprocessed material that has not come from a used product.

Some would suggest that we in the industry should be using the words “reprocessed” or “regrind” far more readily than “recycled”. I suggest that very few products are made from genuinely recycled used rotomoulded products.

What are the practicalities of recycling “end of life” rotomoulded products?

Theoretically, almost all rotomoulded products can be recycled. Polyethylene dominates our process, and it's a very recyclable material. But how many rotomoulded products are being collected and recycled after use? Unlike single-use products, most rotomoulded items have been used multiple times over a very long time – sometimes for 20 or even 30 years.

So how reusable is a material that has been outside for 20 years and has been weathered and degraded by UV? How do

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you recover and re-use a tank that has contained chemicals or oils that may have permeated into the material? What about the costs involved in shipping bulky products back, assessing them, and safely recovering possibly contaminated material?

And then there is the issue of scale. By its very nature rotomoulding creates a highly diverse range of applications in relatively small numbers, and this means that the recovery of products and materials are going to be very complex. Without scale it's going to be hard to justify.

There are some laudable schemes that some rotomoulders have set up to offer to take back end-of-life products, but essentially these haven't been a great success. I am aware of one very successful scheme pioneered by an innovative moulder in New Zealand, leading the way in what can be achieved given the right market, conditions, and focus. Perhaps someone in our industry can share with us some other cases which have been successful and how they have achieved this?

My view is that the recovery of most rotomoulded products will be difficult and very expensive. But the pressure is only going to increase for moulders and OEMs to be responsible for disposing and recycling their products at the end of life. This represents a significant challenge to our industry moving forward.

Demand for roto products made from recycled PE

More rotomoulders are looking to source recycled material. While part of this might be motivated by the significant increases in PE prices and a desire to buy cheaper material, there is also a surge of requests from OEMs and moulders asking that their products be made from recycled.

In Europe, there is a new tax on packaging that does not contain recycled material, and you can see that could easily expand this legislation to include other products. The direction of travel is very clear and we're all going to have to take this subject much more seriously. More customers will insist that the products they buy are made out of recycled material. But where is this material going to come from?

Recycled made from non-roto products

In my view, using recycled material from other processes is an easier and more practical way to source sufficient quantities of recycled material to service the roto industry. So, using Polyethylene post-consumer waste, from blow moulded bottles, injection moulded articles, and some packaging films. The benefit of these waste streams is that they are relatively large, and can develop a more consistent supply chain. The major problem with recycled materials is variability in quality and availability.

One of the other key questions is what percentage of recycled is needed to justify calling a material a recycled grade? Some people in North America tell me a minimum of 25% is needed, other regions say 30%. There again is no clarity in this area and this is something that would be very useful for us to have as an industry. Perhaps a question that could be discussed across our rotomoulding associations around the world? It would be good to have an industry-wide consensus or standard.



Cost

In the past, one of the big attractions that people have had to use recycled is the idea of having a cheaper material. The reality these days is that good quality genuine post-consumer recycled can be much more expensive than virgin. As demand has grown and supply is costly and insufficient there can be a premium of 30-40% or even more for good quality, post-consumer recycled (PCR).

There is also the cost of compounding virgin material with PCR or post-industrial waste and additives to make a material suitable for rotomoulding. So, a "genuine" recycled rotomoulding material, made from PCR, rather than just reworked polymer is likely to cost considerably more than virgin.

And this is one of the biggest questions. While we all want to be "greener" and do the right thing, how much more are we prepared to pay for this? ■