



Market Monitoring Newsletter

THE ESSENTIAL NEWS OF ROTOMOULDING WORLDWIDE

Compressed air systems with rotomolded sound enclosures.



With the space-saving i.Comp 8 and 9 Tower T, Kaeser Kompressoren is proud to introduce a completely new compressed air supply concept that has been specifically developed with this field of use in mind. These units are powerful, compact, easy to maintain, efficient and much more.

At the heart of the i.Comp family is a drive concept, which provides a multitude of advantages. The drive delivers the necessary power to cover the required compressed air demand with infinitely variable control. Moreover, i.Comp family reciprocating compressors are able to operate with 100 percent duty cycles.

Made from roto-moulded polyethylene to enable optimum corrosion- and impact-resistance, the attractive sound enclosure not only hides an advanced all-in-one compressed air station comprising a compressor and a refrigeration dryer, but also keeps sound levels to a minimum and helps retain system value. Since i.Comp Tower systems deliver oil-free compressed air, no oil enters the compressed air supply itself. This in turn eliminates the potential for accumulation of oil-contaminated condensate that would otherwise have to be carefully disposed of. In addition,

there is no need for oil changes or oil inspection, which of course further reduces overall service costs. i.Comp Tower systems are the perfect choice for workshop and trades environments, where a dependable supply of quality compressed air is required.

<https://www.pressebox.com/pressrelease/kaeser-kompressoren-gmbh/Premium-quality-for-trades-and-workshop-applications/boxid/1157899>

Tooling Tech Group Announces Custom CNC for Machining of Precision Parts.



Tooling Tech Group (TTG), a leading provider of highly engineered tools and automated assembly equipment to a wide range of industries, has announced Tooling Tech Custom CNC, machining services that provide fast, reliable custom machining of build-to-print needs for precision parts in sizes up to 150" x 100", delivering tolerances within 0.005 +/- 0.001.

Speed and quality are key to Custom CNC's capability with a commitment to quick turnaround. Additionally, the company holds certification in ISO 9000, ISO 9001: 2008, ISO 9001:2015 and AS 9001. With over 50 machine tools available run by skilled specialists, Custom CNC can process a wide range of materials. Tooling Tech Group (TTG) builds custom automated systems for assembly, joining and inspection as well as tooling for a variety of applications including thermoform molding, high compression composite molding, blow molding, rotational molding, die casting, and stamping. Industries served include automotive, appliance, lawn and garden, agricultural, aerospace, marine, and off-road vehicle industries, among others.

https://www.prweb.com/releases/tooling_tech_group_announces_custom_cnc_for_machining_of_precision_parts/prweb19346639.htm

The Yoyo stool, sturdy and weatherproof.



African folk art stools are often small, low stools carved from very dense wood. Similar to totem poles, they are made from the heart of large tree trunks that were used to make pirogues. The Yoyo stool is inspired by this traditional form, but its designer, Eric Girardon, preferred to use recycled plastic to design it.

This material represents a major ecological threat in Senegal, because of its overproduction, overconsumption, and the massive discharge of single-use packaging into nature. This stool contributes to the spontaneous initiatives of recovery and sorting of waste and participates in the development of a new sector of ecoresponsible production. **Transtech Industries**, a solidarity company based in Dakar and founded by Eric Girardon, produces this piece and other objects in recycled plastic using the rotational molding technique: the material is purchased, sorted and cleaned; it is then crushed and melted in a mold, cooled and demolded. The designer has perfected his formula: he uses 80% recycled material and the rest is made of new polyethylene granules, without which he would not obtain the same robustness. Sprinkled

with multicolored stains, the Yoyo supports all weights and resists to bad weather, heat and monsoons. (News in French)

https://www.lemonde.fr/m-styles/article/2023/05/21/le-tabouret-yoyo-robuste-et-resistant-aux-intemperies_6174217_4497319.html

Research & Patents

Limitations of Short Basalt Fibers Use as an Effective Reinforcement of Polyethylene Composites in Rotational Molding Technology.

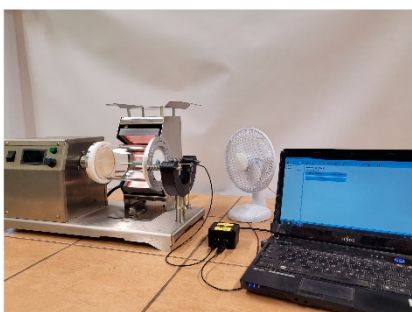


The rotational molding technology is becoming more popular and even outstanding some of the conventional polymer processing technologies. The production of polymer composites via this technology is still not described thoroughly. This work discusses the possibilities of obtaining polyethylene composites reinforced with short basalt fibers.

Two methods of incorporating the fibrous fillers, dry-blending and through preliminary extrusion, are concerned. The application of the extrusion step to mixed polymer matrix with basalt fiber results in better distribution of basalt fibers than the direct dry blending polymer powder with fiber in the mold. The basalt fibers from rotomolded samples prepared from melt mixed plastic powder significantly reduced their length, leading to a substantial limitation in their reinforcing effect on the polymer matrix. The possible reinforcing effect was evaluated in a mechanical test such as a tensile test, impact test, and hardness. Optical microscopy helped in the investigation of the distribution of basalt fibers. Not only the physical structure of composites was examined, but also the chemical composition using the Fourier transform infrared spectroscopy. The spectroscopic analysis confirms a properly realized technological process without degradation caused by rotational molding or additional melt blending. The production of good-quality rotomolded composites reinforced with basalt fibers depends on the method of incorporating the fibrous filler

<http://www.astrj.com/Limitations-of-short-basalt-fibers-use-as-an-effective-reinforcement-of-polyethylene,163579,0,2.html>

Uniaxial Rotational Molding of Bio-Based Low-Density Polyethylene Filled with Black Tea Waste.



In this paper, the possibility of obtaining uniaxially rotomolded composite parts was discussed. The used matrix was bio-based low-density polyethylene (bioLDPE) filled with black tea waste (BTW) to prevent the thermooxidation of samples during processing.

In rotational molding technology, the material is held at an elevated temperature in a molten state for a relatively long time, which can result in polymer oxidation. The Fourier transform infrared spectroscopy (FTIR) shows

that adding 10 wt% of black tea waste has not led to the formation of carbonyl compounds in polyethylene, and adding 5 wt% and above prevents the appearance of the C-O stretching band connected with degradation of LDPE. The rheological analysis proved the stabilizing effect of black tea waste on the polyethylene matrix. The same temperature conditions of rotational molding did not change the chemical composition of black tea but slightly influenced the antioxidant activity of methanolic extracts; the detected changes suggest degradation is a color change, and the total color change parameter (ΔE) is 25. The oxidation level of unstabilized polyethylene measured using the carbonyl index exceeds 1.5 and gradually decreases with the addition of BTW. The BTW filler did not influence the melting properties of bioLDPE; the melting and crystallization temperature remained stable. The addition of BTW deteriorates the composite mechanical performance, including Young modulus and tensile strength, compared to the neat bioLDPE.

<https://www.mdpi.com/1996-1944/16/10/3641>

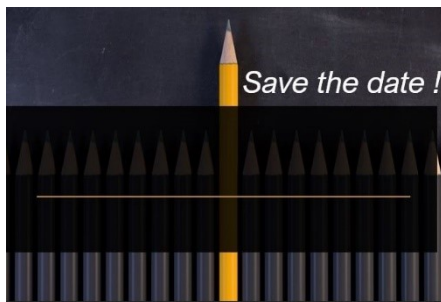
Development of an Ultrasonic Method for the Quality Control of Polyethylene Tanks Manufactured Using Rotational Molding Technology.



Tanks made of three different brands of rotational polyethylene (DOW, ELTEX, and M350) with three degrees of sintering (normal sintering (NS), incomplete sintering (ICS), and thermally degraded sintering (TDS)) and three thicknesses (7.5 mm, 8.5 mm, and 9.5 mm) were explored.

It was found that the thickness of the walls of the tanks did not have a statistically significant effect on the parameters of the ultrasonic signal (USS). An increase in temperature caused a decrease in the USS parameters. According to the temperature coefficient of stability, the ELTEX brand of plastic can be distinguished (from DOW and M350). The ICS degree of the sintering of the tanks was revealed from a significantly lower amplitude of the bottom signal, compared with NS and TDS degree samples. By analyzing the amplitude of the third harmonic of the ultrasonic signal (β), three degrees of the sintering of containers NS, ICS, and TDS were revealed (with an accuracy of about 95%). Equations $\beta = f(T, PIAT)$ were derived for each brand of rotational polyethylene (PE), and two-factor nomograms were constructed. Based on the results of this research, a method for the ultrasonic quality control of polyethylene tanks manufactured using rotational molding was developed.

<https://www.mdpi.com/2073-4360/15/10/2368>



Introduction to Rotomolding Seminar

25 /27 June 2023

Rotomould23

1 /13 September 2023

Rototour Nordic 2023

10/12 September 2023

ARMO World Conference 2023

27/30 September 2023

ARM 2023 Annual Meeting

28/29 November 2023

Master Class AFR



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