



Cycletime Tips – Automotive

Volume 24: Thermal Surface Treatment on Thermoplastic Elastomer (TPE) Parts

I was recently involved with an automotive interior application using a thermoplastic elastomer (TPE). The application was a cup holder for the center console. This cup holder is typical of console cups throughout all car and truck lines. Normally these cup designs can be molded to quality specification if the designer pays attention to the proper location of the gate and runner system and processes the TPE according to the manufacturer's specifications.

These cups can become a molder's nightmare when the designer locates the gate in areas that will not allow the material to flow properly from the gate to the end of fill. The result is uneven gloss levels and heavy knitlines. The molder is left with only the process to solve the problem of a poor design.

One of our customers has solved this issue with the addition of heat, over time, to the finished part. An index table was fabricated using 12 stations. The molded parts are inserted into the receiver and the table is rotated to its first station where a hot air gun blows heated air on the part at a predetermined temperature, height and time. The table is then indexed and the part is partially rotated and arrives at the next heat gun station. The part continues on until all areas are treated with the heat.

The hot air blown and directed on the cup creates an even gloss level throughout the entire part and improves the appearance of the knitlines.

The customer, previous to the application of heat to the surface, was experiencing very high scrap rates due to the uneven gloss and knitline issues. After the application of heat over time was introduced the scrap rate was less than 1 percent.

I have contacted the material supplier of the TPE used. They confirmed that if not abused, heat treating the surface of the part will not affect the parts performance.

If anyone is interested in researching this method for one of your parts, I would be happy to share detailed information with you.

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