N2 / Air nucleation system

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Features

- Very high reliability, low maintenance, no moving parts.
- Uniform entrainment of gas, continuous mixing through two static mixers in a kidney loop.
- Self contained, stand alone unit.
- Easy to operate, density level is settable from operator interface.
- Continuous monitoring of the level of gas entrainment via a Coriolis meter.

Benefits

- Produce a very fine microcellular structure in the foam.
- Eliminate surface defect in polyurethane foams.
- Improve mixing quality.
- Improve insulation properties of the foam.
- improve the flow of material in a closed pour mold ensuring proper fill.
- Air/N2 is entrained into the Iso and Poly during storage and handling. A nucleation system will control the level of air entrainment in the liquids.
- Reduction of chemical usage and part weight.

Effect of nucleation on foam quality

This question is better answered by the foam system maker, however the following is known:

- If not sufficiently nucleated, foam cell size and stability problems may occur, entrained gas in a polyurethane mixture helps in proper nucleation.
- Gas entrainment, leads to smaller cell size, which in turn reduces the rate of aging, and causes a reduction in initial thermal conductivity.
- Reduction of cell size will give the foam a softer tactile feel.
- Reduction of cell size will improve the fatigue resistance of polyurethane
- Excessive amount of dissolved gas in the isocynate may lead to foam collapse