

UNICELL-5PT

- 5-Phenyltetrazole
- Foaming agent for high temperature process

Description

UNICELL-5PT is an advanced foaming agent for high temperature processing application. High temperature and abrupt decomposition reduce the fear of premature decomposition during compounding. UNICELL-5PT can be applied for engineering plastics, such as polycarbonate, ABS, polyamide and fluoro plastics without colored or corrosive residues.

Properties of UNICELL-5PT

Item	Specification
Chemical Name	5-Phenyltetrazole
Appearance	White needle shape solid powder
Decomposition Temperature (°C)	226~234
Gas Volume (ml/g, at 25°C)	165~185
Moisture Content (%)	0.3 max.
Chemical Formula	C ₇ H ₆ N ₄
Specific Gravity	1.42
Solubility (g sample/100ml solvent, at 25°C)	Very soluble in alcohol and common organic solvent
CAS No.	18039 - 42 - 4

Decomposition of UNICELL-5PT

In the threshold of decomposition, UNICELL-5PT first melts and then gases are evolved. UNICELL-5PT forms a pink intermediate and, on complete decomposition, produces a colorless residue releasing more nitrogen. The appearance of pink in molding or after molding may be an indicator of too low polymer melting temperature or poor melting homogeneity. So, the color is a scale of expanding efficiency. Among the decomposition residues, three kinds of substituted heterocyclic residues, they are amino-diphenyltriazole, 3,5-diphenyl-1,2,4-triazole and triphenyl-5-triazine.

Applications

UNICELL-5PT is particularly designed to be suitable for the expansion of high temperature softening resins such as Polycarbonate, Polyester, modified Polyphenyloxy, Polyamide and their glass reinforced system. UNICELL-5PT evolves only inert and non-corrosive gases, so it can protect the polymer chain against the degradation and scission. For the reason, UNICELL-5PT is suggested to be used without beryllium molds in order to avoid the chemical attack caused by the decomposition products of other foaming agents. UNICELL-5PT can be used in the processes of injection, extrusion, compression and rotational molding. In injection molding, the typical adding quantity is less than 0.1% of resin quantity, but occasionally 0.2~0.3% is recommended. Too high level structure, poor skin and density increase in the molded part. The dispersibility of UNICELL-5PT is good enough to be compounded in dry tumbling or machine mounted hopper.