Can Ampacet Help You Solve Problems With Gels?

Ampacet’s world-class analytical services can help plastics converters identify the type of gels found in their product and the location of the gel in a coex design. Ampacet offers a variety of products that can be used to significantly reduce most gel problems. However, it is important to note that the proper identification of the gel source is critical in a decision process involving any kind of counteraction. If the wrong counteraction is applied, the gel problem can intensify. The source of gels is generally from one of the following areas:

**Degraded or Cross-Linked Polymer**

- Cross-linked polymer that results in inconsistent surface characteristics and/or variation in optical properties
- Caused by factors such as: high heat exposure, high shear, long residence time, insufficient A/O package, etc.
- To solve this problem, use lower processing temperatures, A/O package, higher throughput, less aggressive screw design, etc.

**Improperly Distributed Resin or Concentrate (often called “un-melt”)**

- Caused by viscosity variation and/or processing conditions
- Often referred to as un-melted resin or un-melted concentrate
- Modification to the processing conditions can often solve the problem (higher back pressure, mixing screw design, tighter screen pack, temperature profile adjustment…)

- Modifications to the concentrate include smaller pellets, lower concentration, and carrier resin adjustments

**Poor Dispersion Quality**
Insufficient energy applied during concentrate production

Surface and optical properties will be effected, opacity reduced

To solve this problem, the concentrate supplier must alter his process and or raw materials (adjustments to your process are not going solve this problem)

Are you using the right concentrate for the job?

If yes, change concentrate lots

In addition to gel identification tools, Ampacet has the capability to run suspect materials on commercial scale line equipment to verify if the problem is equipment or material related. For example, if the occurrence of the problem is linear, it generally suggests that the problem is equipment related. In order to verify this theory, a follow-up run on a separate piece of equipment is necessary. This is where Ampacet can help. Ampacet has access to equipment that includes both co-extrusion and monolayer film configurations, in addition to a diverse line of molding equipment for our injection and blow molding customers.

Ampacet does offer a variety of products that can help eliminate gel problems. An excellent antioxidant concentrate designed to reduce gels caused by oxidation during processing is called Ampurge 401 (100401). 100401 can be used both in film and molding applications. To further enhance processing performance and reduce gels, Ampacet offers a process aid technology in AmpFlow 919 (10919). For applications with higher processing temperature requirements, Ampacet offers AmpFlow 458-A (100458-A). The process aid and antioxidant technology can be used in combination for even greater effectiveness.

For more information, please contact Ampacet’s technical support team at 888-822-7546 or 812-466-9828.

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