



New Frontier in Monomer Free Laminating Adhesives

Thanks to our new family of monomer free laminating adhesives, we are going to challenge the status quo in the food flexible packaging industry. So far it has not been possible to use polyurethane adhesives, either solvent based or solvent free, avoiding risk symbols and phrases due to the presence of a certain concentration of free monomeric Isocyanate in the adhesive.

Facing the current situation, a new family of monomer free adhesive is our solution.

At present, SAPICI adhesive products are able to fully cover all of the flexible packaging laminating applications, providing a higher safety level for both working environment and final consumers.

Although several advertisements related on 'green tech, low monomer products' have been announced in adhesive fields, yet most of them were not so excellent as demonstrated, because they kept some risk phrases resulting from the monomeric isocyanates or weak in performances.

Green, safe, sustainable etc. words have been drawn more attention in recent years. As a chemical company, we are not only focus on keeping growing thanks to contributions from employees, but also conducting R&D to realize green products by our technologies and specialties.

As known, from scientific point of view, there is nothing absolutely pure, like 100%, thus 'monomer free' concept here means that the free monomer content is so low ($< 0.1\%$ w/w), which allows following the most updated labeling and safety regulation and avoiding typical risk phrases of the free monomer isocyanates.

The greatest advantage is closely related to safety, which is comprehensively argued and discussed everywhere in the world. Before systematically demonstrating the advantages of free-monomer products, we would list the harmfulness of conventional polyurethanes adhesives, for instance, suspect of leading cancer, asthma, breathing difficulties, sensitisation etc..

So which safety advantages do the ' $< 0.1\%$ free monomer' bring to us?

Firstly, monomer free products show no harmfulness to operators and their working environments. Secondly, it can be easily transported and stored under very limited supervisions. Thirdly, monomer free products do not contain any carcinogenic substances (MDI, TDI and/or PAA) migrating from packaging to food products. Usually, PAA origins from monomer residue after curing process. Moreover, based on scientific researches, sterilization process could reform PAA by degradation of polyurethane. Due to our huge efforts, PAA residual content of our monomer free products after sterilization is approximately two times lower than 10 ppb (PAA limitation in the light of the latest food contact regulation). In this case, extremely rapid PAA decay allows laminated films immediately ready to transport after lamination instead of keeping them for several days in order to wait for food regulation compliance.

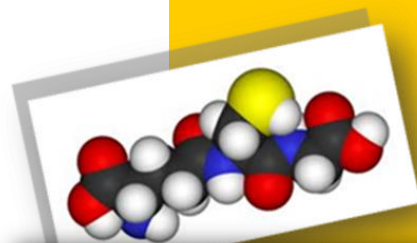


Besides above advantages, according to the regulation, our monomer free products were labeled as follows: solvent-based free monomer products do not label with H334 (May cause allergy or asthma symptoms or breathing difficulties if inhaled), only with flammable or eye problems mainly due to the solvent in product; solvent-free ones even do not label with any harmful symbols. This is a significant improvement compared with other products in the commercial market. In addition, our monomer free products exhibit not only high safety properties, but also high performances even after sterilization. Meanwhile, monomer free products likely reduce the bubbles or wetting failures problems in the high barrier laminated film due to less CO₂ emission.

One serial of monomer free products integrates several advantages. Their quality/price ratio, however, is extremely convenient and its excellent performance result in green and safe food packaging as well. At the end, please let safety accompany with you from production to end users, free monomer product is your next ideal choice.

Other Innovations

- ✓ SB High Performances for Hot Filling (BPA free, Epoxy Silane free, NPG free)
- ✓ SB for high performances suitable for very slipping films
- ✓ New solvent free High speed-High Performances PAA free in 1,5 days (500m/min and 300m/min on barrier films)
- ✓ SB Adhesives High Performances Monomer free (below 0,1%)
- ✓ Aliphatic SB for sterilization with shorter curing time
- ✓ Cold forming for Pharma blisters (PA/ALU/PVC)
- ✓ Solvent based Cyclic Esters free



**We welcome your inquiries.
For additional information,
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