Making it possible to achieve 100% PET recycling

Alkali-dispersible hotmelt for full recyclable PET bottles

With more than 90% of the pollution found in our oceans being made up of various forms of plastic waste, the recycling of plastic waste has become one of the hot topics of our times. Across the world, governments and industry are creating initiatives and promising to deliver on more effective recycling.

In Australia and New Zealand, the national governments have published packaging targets, which state that by 2025, 100% of all packaging will be reusable, recyclable or compostable, and that at least 70% of Australia's plastic packaging will be recycled or composted.

Consumers are also driving corporate responsibility in relation to recyclable plastics. Surveys in Australia have indicated that consumers are now highly concerned about environmental issues. In a recent survey conducted by CommBank[1], 53% of respondents said they are willing to pay more to buy from purpose-led businesses, but they expect that purpose to be genuine: if a company says it is committed to 100% plastic recycling, then they expect them to 'walk the walk'. And of the issues they want to see addressed, reduction of packaging and use of plastic was the second highest priority at 84%.

Corporate goals versus reality

At the World Economic Forum in Davos, 11 major global corporations announced that they would work towards using 100% reusable, recyclable or compostable packaging by 2025 or earlier. Among them were major beverage manufacturers PepsiCo and The Coca-Cola Company.

For its part, Coca-Cola committed to collect or recycle a bottle or can for every one sold by 2030, and to make them recyclable by design. In Australia, all the company's plastic bottles under one litre are now made from 100% recycled plastic (PET), with the exception of caps and labels.

However, while PET itself may be 100% recyclable, it does not mean that an entire PET bottle is recyclable. Part of the problem is the product labels, and the adhesives that hold them on the bottle.

Best practice for label adhesives

The Australian Council of Recycling (ACOR) has published a guide[2] for PET bottle recycling. In relation to the use of label adhesives, ACOR recommends that companies:

- Keep labels sizes to 25% of the height of the bottle or less.
- Minimise the use of adhesive and keep the adhesive layer as thin as possible.

The common "recycle-friendly" hot-melt adhesives used for PET container labels to date can vary in their ability to be separated from PET, leading some bottle recyclers to avoid recycling the label section of the bottle completely. If the ACOR guidelines are followed, this still may result in up to 25% of the PET not being recycled.

Introducing TECHNOMELT EM 598 RE

Henkel Australia and New Zealand has released a new alkali-dispersible hotmelt that enables PET bottles to be fully recyclable: TECHNOMELT EM 598 RE.

A special selection of raw materials has been chosen for this general-purpose recycling-grade adhesive to provide the best recycling properties at the same time ensuring excellent labelling performance.

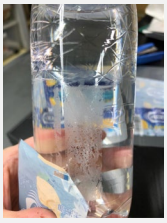
Benefits include:

- Superior bonding performance
- Clean label detachability
- 98% adhesive removal with good dispersibility in alkali solutions
- Compliance with the FDA indirect food additives regulation 21 CFR 175.105 'Adhesives'
- Compliance with the Korea Testing & Research Institute's criteria for alkali dispersibility of label adhesives
- Low product carbon footprint, as tested by Henkel Corporate Analytics.

In a simulated recycling label peel test, TECHNOMELT EM 598 RE has been shown to be completely removed from the bottle, unlike existing label adhesives. In floatation tests with a 1.5% NaOH solution at 85°C for 15 minutes, no TECHNOMELT EM 598 RE residue was left on either the label material or PET flakes, showing that the adhesive dispersed completely in the solution.

Enhanced labelling performance

Before



Conventional HMPSA - Leaves Adhesive Residue

EM 698 RE by Henkel - No Adhesive Residue

Being easy to debond during recycling should not detrimentally affect the labelling performance of the adhesive.

In testing, TECHNOMELT EM 598 RE has shown more than double the adhesion and greater temperature stability, when compared with conventional hot melt adhesives at temperatures from 0°C to 40°C. It also enhances the user experience through reduced adhesive visibility, while enhancing labelling safety with a lower melt temperature and reduced odour and fumes.

Achieving 100% PET recycling is now possible

TECHNOMELT EM 598 RE from Henkel now makes it possible to completely remove all label contaminants from PET containers during the recycling process, achieving 100% PET recycling for the first time.

Plastic pollution is one of the hottest environmental topics today, and today's consumers expect more action from corporations in relation to the recycling of packaging. Eliminating those technical hurdles that prevent 100% recycling ensures that the company's actions can meet consumer sustainability expectations.

Learn More

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1. CommBank 2022, *CommBank Consumer Insights: The power of moving with purpose*.
2. Australian Council of Recycling, *Recycling Guide for Fillers in PET Contained.*