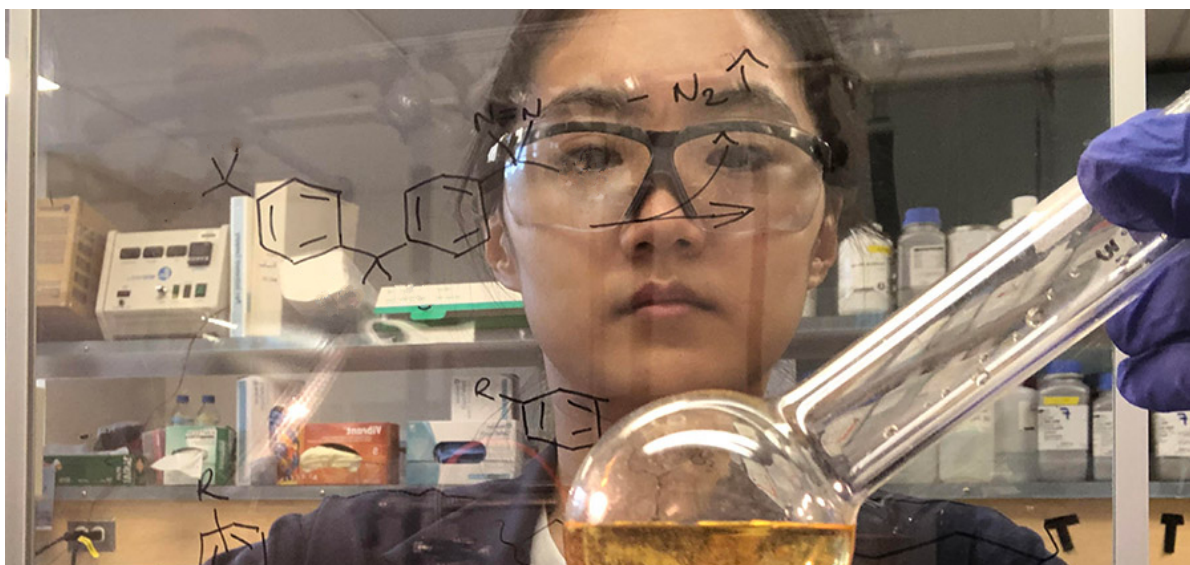


Making Connections



The XlynX Materials Newsletter

July 2023





A cleavable crosslinking solution to post-consumer plastic waste

XlynX Materials is proud to announce the recent publication of new and encouraging research into one of the most persistent problems of our time; plastic reprocessing and waste mitigation.

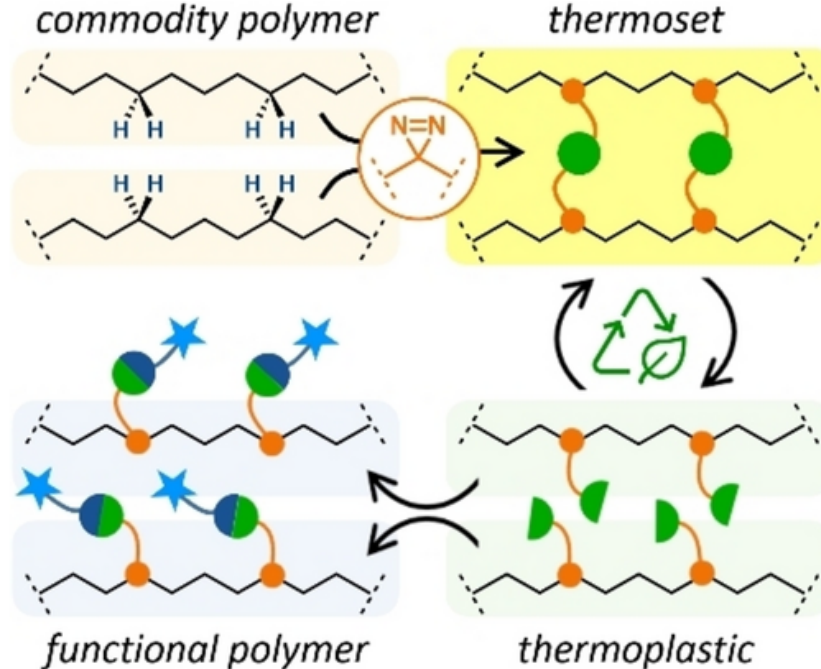
Developed in partnership with the Wulff Group of organic chemists at the University of Victoria and published in the German scientific journal *Angewandte Chemie*, the study demonstrates how diazine crosslinking technology pioneered by XlynX Materials can be adapted in new and innovative ways to address material challenges. This research project was aimed at two challenges associated with reprocessing post-consumer plastic waste; the incompatibility of mixed waste thermoplastics and the irreversible nature of thermoset plastics.

It is estimated that only 9% of all plastics ever produced have been recycled. In part, this is because most post-consumer plastic waste is a mix of thermoplastics like polypropylene (PP) and polyethylene (PE). Attempting to blend these two incompatible substrates together will lead to separation and an inferior reprocessed product. As a result, most thermoplastic waste is destined for incineration or landfills at the end of its useful life cycle.

Diazine crosslinkers, like those employed in BondLynx, don't distinguish between polymer substrates and can be used to bond dissimilar materials like PP and PE together into rigid thermoset plastics. However, thermosets pose their own challenges. Once hardened into their final form, they cannot be easily broken down for reprocessing.

Introduction of cleavable groups to diazine crosslinkers

Cleavable bis-diazine crosslinkers upgrade commodity or waste polymers into reprocessable thermosets and add new functionality into polymers



The innovative solution to this problem was to introduce a cleavable group to the diazirine crosslinker. In doing so, these cleavable bonds can later be selectively uncoupled through an appropriate input. The success of this study suggests a more sustainable life cycle for plastics could be achieved by upcycling post-consumer waste plastic into high value thermosets which can eventually be broken down for future reprocessing.

If you'd like to learn more about XlynX's diazirine crosslinking technology, we would love to hear from you. Contact us at info@xlynxmaterials.com or visit us online at www.xlynxmaterials.com.

In case you missed it...

XlynX connects with the perovskite solar cell community!



Last month, we shared some [remarkable results](#) about how BondLynx can be used to stabilize perovskite solar cells. While we thought this news would get some attention, we've been amazed by the interest in this topic!

Since announcing the results of this study, more than 30 media outlets have featured our story, including CleanTechnica, Physics World, New Atlas and Composites World. With client trials now under way, we're excited to prove how BondLynx treatments can result in real-world efficiency gains.



Getting Out and About

It's been an exciting year as we spread the word about our innovative chemtech. Last month, XlynX was on-hand at [CSC 2023](#) to organize sessions, present, and learn. XlynX was also in Michigan this June for the [Adhesives & Bonding Expo](#) to learn, network, and introduce manufacturers to the enabling potential of diazirine crosslinking.

As with any new and disruptive tech innovation, we know we're challenging the way manufacturers think about bonding and surface treatment solutions, but at XlynX Materials, making connections is what we do best!

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