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The CreaSolv® Process is no „Chemical Recycling"!

Plastic recycling and Circular Economy are hot topics in the actual discussions about the Global plastic waste pollution. It seems that the actual focus is on three recovery technologies "Mechanical Recycling, Chemical Recycling and Energy Recovery" for treating the massive plastic waste volumes we are confronted with.

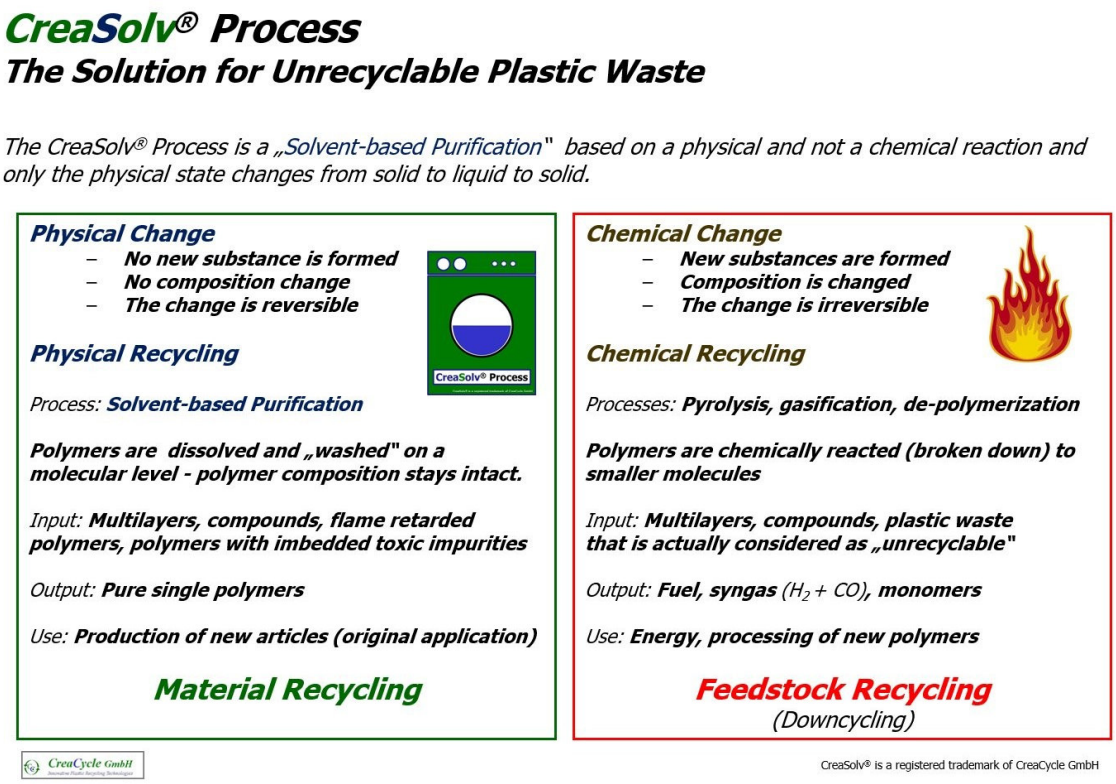
One also gets the impression that there exists an inflation of the term "recycling".

And unfortunately, on top there exists some confusion about what is the underlying science or principle for a certain plastic recycling technology. After having been confronted more often with the explanation that the CreaSolv® Process belongs to Chemical Recycling we see the need to correct and clarify this.

The CreaSolv® Process is a solvent-based purification that is based on physical and not on chemical processes (or changes). In the CreaSolv® Process the polymer only changes its physical state from solid to liquid and back to solid. Therefore, the correct description is ***Physical Recycling***.

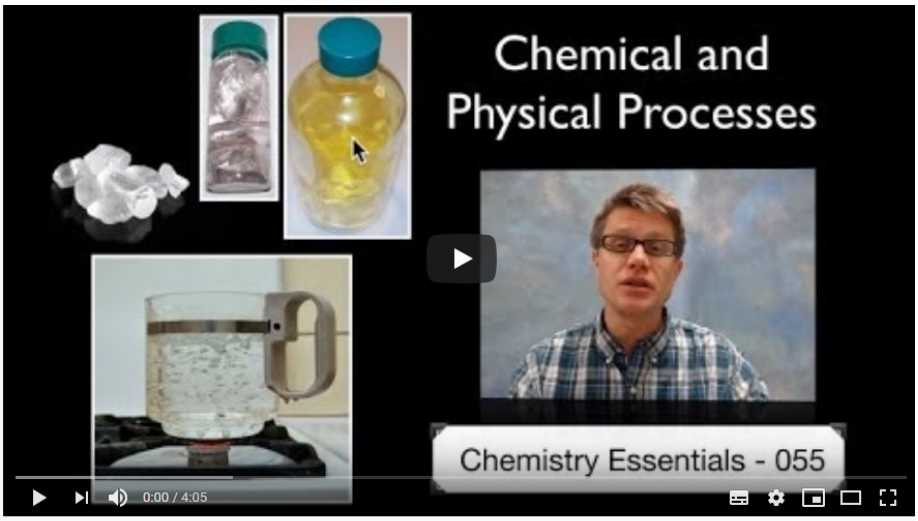
Also, Mechanical Recycling is "Physical Recycling". Plastic waste sorted by single polymer type is shredded to flakes (physical change); the flakes are molten in an extruder (physical change) in order to produce granulates or new articles.

Both mechanical recycling and solvent-based purification use plastic/polymer waste as ***input material*** and produce recycled "clean" polymers as ***output material***. Because the recycled material (or polymer) doesn't change its composition, this is called ***Material Recycling*** (in German: Werkstoffliches Recycling).



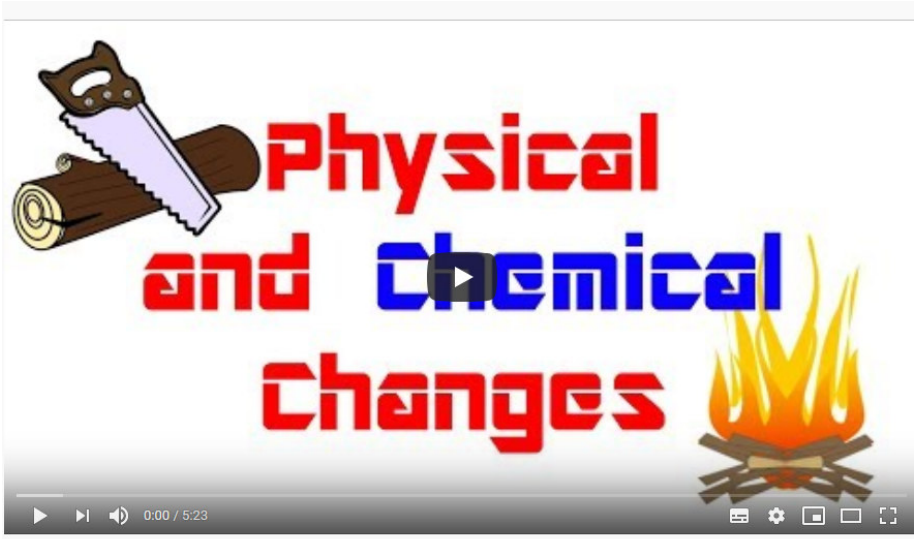
Like in a washing machine the waste polymers are ***"washed on a molecular level"*** in the CreaSolv® Process in order to ***recycle*** pure polymers which can be ***re-used*** in the original applications.

The following education videos are self-explanatory:



Chemical and Physical Processes

https://www.youtube.com/watch?v=ziQtpXVDpn0&feature=youtu.be



Physical and Chemical Changes: Chemistry for Kids - FreeSchool

https://www.youtube.com/watch?v=x49BtB5dOwg&feature=youtu.be

A main difference between a physical and a chemical change (or process) is ***composition***. In a chemical process, there is a change in the composition of the substances in question; in a physical change there is a difference in the appearance, smell, etc. but without a change in composition.

During Chemical Recycling the polymer chains are broken down to smaller molecules (with lower value). It is a ***move down the value chain*** and this is why "***Chemical Recycling***" is considered as ***downcycling***.

CreaSolv® is a registered trademark of CreaCycle GmbH

In order to protect resources and our environment, high-quality recycling technologies for plastic waste are required, which allow the reuse of polymers without breaking up the polymer chains.
CreaCycle GmbH and the Fraunhofer Institute for Process Engineering and Packaging (IVV) in Freising, Germany combined their competencies in a cooperation aimed at "Plastic/Raw-Material Recycling with a Solvent-based Purification Technology" (selective extraction) and developed the CreaSolv® Process that is based on physical changes and leaves the polymer composition intact.
Proprietary CreaSolv® Formulations from CreaCycle with the lowest risk potential possible for user and environment dissolve selectively a target polymer. This reduces besides the hazard also the cost for the equipment. After the separation of imbedded impurities or undesired polymers the recycled polymer can be reused in its original application.

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