

Chemical Recycling of PET

(Polyethylene Terephthalate)

Textile, Packaging, Food & Beverage brands set sustainability targets to use recycled polyester from **45% to 100%**

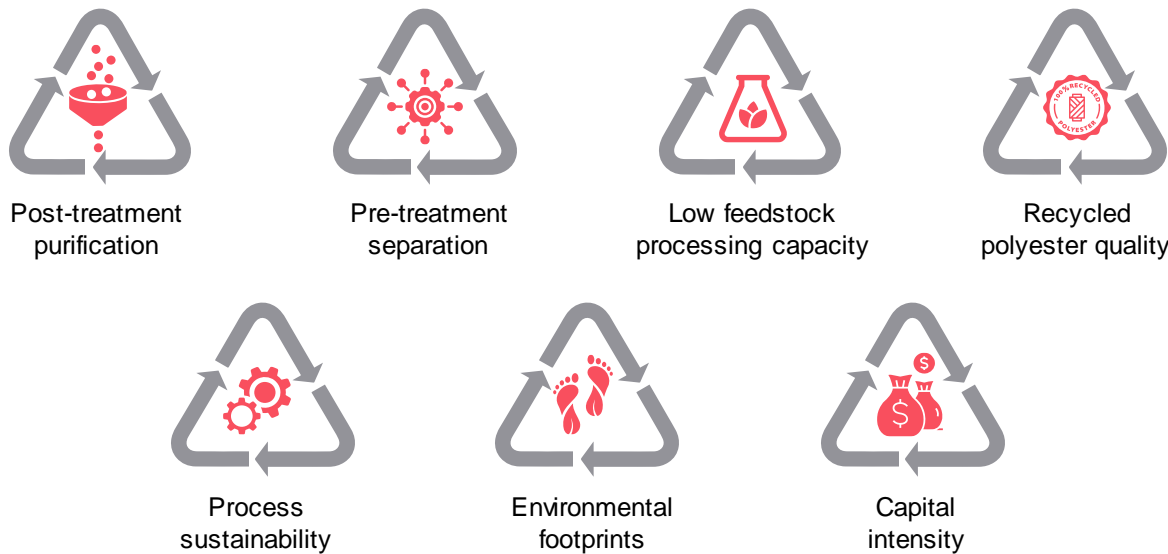
Global Demand of Recycled Polyester by Application Segment



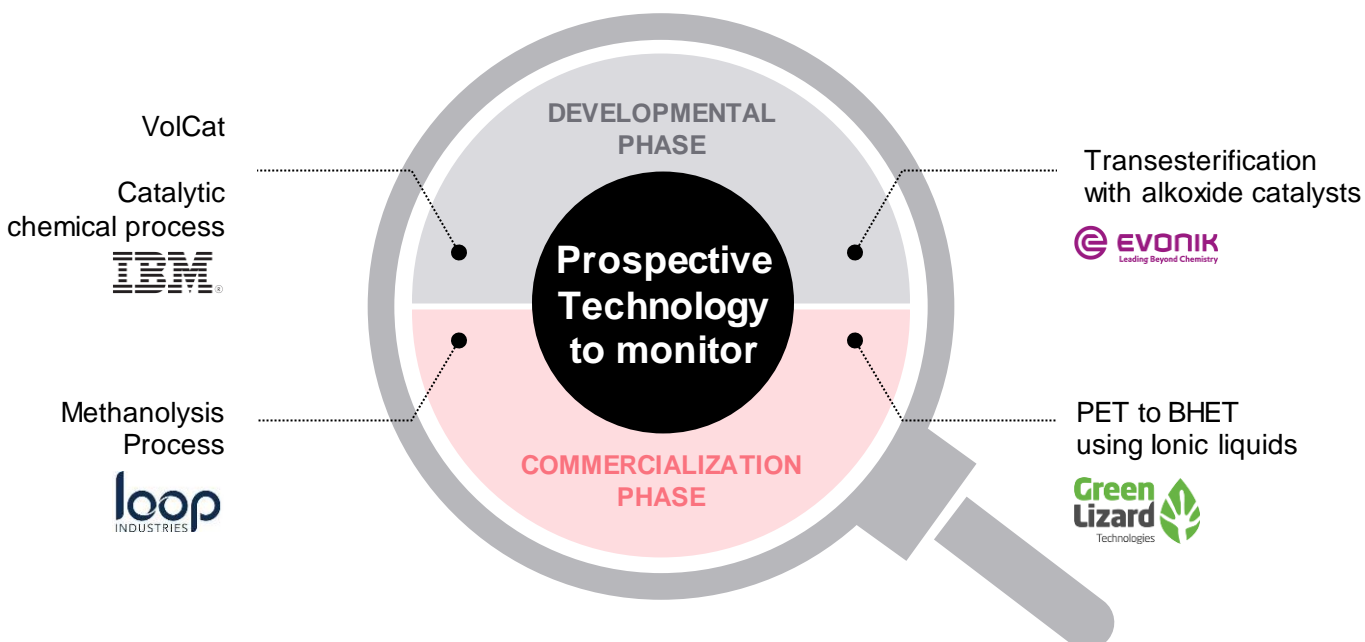
	Polyester Recycling Technologies			Pros & Cons of Technologies		Partnering Entities		
	TECHNOLOGY	INPUT	OUTPUT	PROS	CONS	RECYCLING ENTITIES	BRAND OWNERS	
More Mature ↓ Less Mature	Mechanical	PET bottle	PET flakes	Chemical free	Low Product versatility Requires clean waste	demtco	Coca-Cola	
	Thermal	PET bottle	White textile fiber	Chemical free	Inferior mechanical properties			
	Chemical Recycling	Glycolysis	PET bottle, Textile fiber	BHET, EG	Product versatility	Low feedstock processing capacity	SULZER	H&M
		Methanolysis		DMT, EG	Produces monomers of PET	Environmental footprint	worn again	PUMA
		Hydrolysis		TPA, EG	More tolerant of mixed waste stream	Low conversion rate	The Infinitely Fiber Company*	adidas
		Aminolysis		BHETA, Terephthalamide, EG	More inclined to circular economy	Capital intensive process		
Enzymatic	Colored Textile fiber	White textile fiber	Low energy intensive process	Poor Product quality	CARBOS	TECNIPOL		

Chemical recycling of PET is a promising technology due to its high product versatility and invaluable monomer feedstock

Potential areas of research in chemical recycling



Prospective technology to monitor



Conclusion

Chemical recycling of polyester is gaining attention due to its efficient handling of mixed feedstock, surpassing mechanical recycling in this regard. Additionally, the products derived from chemical recycling are versatile and monomeric. Chemical recycling of textiles holds the potential to yield materials of equal quality and value as products from virgin feedstock. Research in chemical recycling field is progressing rapidly leading to reduced energy and water consumption and close to 99 percent recycling of the chemicals used.

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