

Smithers Rapra research sees market trends driving increased demand for TPEs to 2024

Dynamics of a growing TPE market

The thermoplastic elastomers (TPE) market is set to grow faster over the coming five years than in recent history, rising from 4.76 million tonnes in 2019 to 6.42 million tonnes in 2024, according to new research from Smithers Rapra. The global TPE market is forecast to experience a compound annual growth rate (CAGR) of 6.2 % from 2019 to 2024, according to the report. This is up from a 5.8 % recorded for 2014–18. Significant demand in the automotive industry, aligned in part to the meteoric rise of the electric vehicles market, is key to this impressive growth. Meanwhile growing consumerism in parts of Asia – in particular China, but also the likes of Indonesia and Malaysia – is also going to be a driving force for the TPEs market over this forecast period. Some of the key findings of the new report are summarised in this article.

End-use markets

The global automotive industry is a major factor in TPE market growth – and in particular the demand for electrically driven vehicles, sales of which are themselves growing at double-digit rates. The urgent need to increase these vehicles' driving range will demand serious weight reductions, which can only be accomplished with an increase in the use of plastics and elastomers in automotive construction. It is not only the passenger and light commercial vehicle sector that will profit from these developments, but also that of heavy goods, buses and other larger forms of transportation.

While slower to take off, the autonomous vehicle will require even more cables and electrical equipment than the electrically powered vehicle. Indeed, these are likely to become one and the same vehicle in the not-too-distant future. Classical vulcanised rubber replacement continues to be a major contribution to TPE growth.

There is also the medical market for TPEs, which maintains impressive growth. This is partially due to the continuous replacement of plasticised PVC by TPE, caused by increased concern as to the viability of certain PVC plasticisers.

Building and construction markets have suffered in the past due to lack of funding, but population growth is bringing renewed need for new housing projects. The increase in purchasing online has had a notable im-

act on the increase in warehousing, a major consumer of TPEs for roofing; hence a slightly better outlook for TPEs.

The household appliance market has slightly increased its consumption of TPEs,

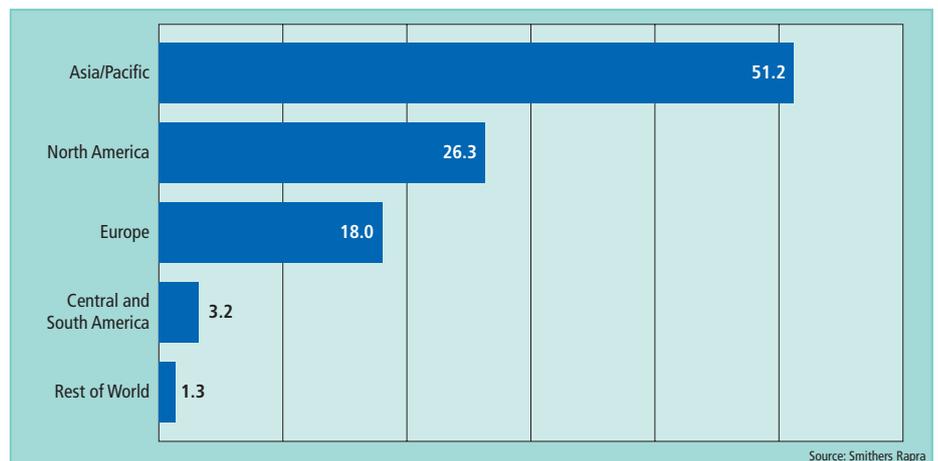
mainly for gaskets and seals. The emergence of the cordless and bagless vacuum cleaner is responsible for part of this growth.

Packaging meanwhile is an area on the decline for TPEs. In the past it has shown

Global thermoplastic elastomers market by end use 2024, by volume (%)



Global thermoplastic elastomers market by region 2024, by volume (%)



Flexible Solutions

great promise; but replacement by lower cost plastomers is the factor here, particularly for flexible film and for wine bottle closures.

Footwear is another area with less promise, although it is a victim of its own success – TPE soles being much harder wearing than many other materials. The growth of designer sports footwear has helped slightly to return TPEs to their previous position, especially for thermoplastic polyurethanes.

Regional markets

The Asia-Pacific region continues to dominate the global thermoplastics market. It will continue to expand, though at a slower rate than in previous years. China is by far the largest consumer of thermoplastic elastomers, not only in the region but also in the world.

The growth of consumerism continues to outstrip demand in certain products. This is despite the fact that some imported raw materials are more expensive in the Asia-Pacific region than in Europe. The impact of e-mobility is greatest in China, which is outstripping the rest of the world in the purchase of electric vehicles. Other products, such as household appliances, are now being consumed faster by China's population than ever before. This shift to an importing economy has stimulated growth in economies neighbouring China as well. Indonesia, the Philippines, Thailand and Vietnam are all benefitting from this change.

The more mature economies, such as Japan and South Korea, are less buoyant. The Indian economy is currently growing fast, due to a sharp rise in consumer spending. All these trends are helping the thermoplastic elastomer markets to grow.

The North American markets are showing a mixed picture, especially for the future. The increasing availability of lower cost petrochemical raw materials is driving the US economy, in favour of the TPE market. The current tightness in butadiene supplies will not be a problem for the US in the long term. Alternative routes are being developed to produce on-purpose butadiene, which will

be more than enough to satisfy TPE's modest needs.

The US economy is thriving, and many companies are returning to the US from Asia in particular, since their labour costs are beginning to outstrip any advantage that an Asian investment might have had in the past. Canada will do very well on the back of the US economy, but it remains to be seen whether the isolationist policy currently practised by the US administration will have a negative impact on Mexican industries. Mexico's automotive industry is only partially dependent on the US market, most of its production going to other American countries, and even to Europe.

Europe outlook is less positive. Rising social unrest, higher taxes and shrinking markets do not help the TPE market, to say the least. The uncertainty over the outcome of Brexit is not bringing stability to the European market's future. High technological advantages are helping somewhat to redress the balance, in favour of TPEs, however.

TPE material types

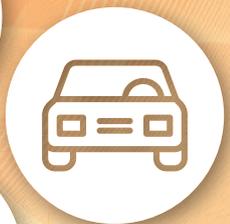
TPS continues to represent the largest consumption within TPEs, and is in fact growing at the expense of other TPEs. A driving force of importance is in the field of PVC replacement. Growing doubts regarding the use of certain so-called 'safe plasticisers' are driving many medical applications towards switching to TPS.

SBS and SEBS, being both elastomers, can accept a relatively high loading of inorganic fillers; this makes TPS an ideal candidate for flame retardancy, which requires high levels of flame retardants to be effective. TPEs are also replacing PVC in cable jacketing applications. TPS is in some cases competing with TPV in automotive seals, which is in turn competing with vulcanised EPDM.

The drive in the growth of TPOs is mainly from the automotive sector, though it is also being seen in the growth of building and construction applications, such as roofing and geomembranes. The switch from EPDM to metallocene catalysed ethylene-

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butylene ethylene-alpha-olefin copolymers is also opening up opportunities for TPOs, where these metallocene polymers are enabling TPOs to perform at much lower temperatures than those based on EPDM.

There is also good growth forecast for TPV, due to it being used increasingly in the replacement of classical vulcanised elastomers, especially in automotive applications. The increasing demand for higher tempera-

ture TPVs is at last being met by a number of compounders. Whereas EPDM-based TPVs could not be used in long-term situations, much above 120 °C, they are now being produced with long-term heat resistances up to 170 °C. They are in some cases competing with TPCs, especially in automotive applications.

Despite this, TPCs are holding up well, given their excellent combination of heat and

chemical resistance. TPAs are also not faring so well and their relatively small market share is decreasing. TPUs are also losing some market share, due to lower cost TPEs replacing them in wire and cable applications. The increase in e-mobility might reverse this trend, since TPUs have outstanding abrasion resistance, a property required in electric vehicles, combined with TPU's excellent heat resistance.

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