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EPDM-based Thermoplastic Vulcanisates

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An overview will be given on the development of thermoplastic vulcanisates (TPVs) and their current commercial production and applications. Like other thermoplastic elastomers, TPVs combine the elastic and mechanical properties of thermoset crosslinked rubbers with the melt processability of thermoplastics. Emphasis will be on the general purpose TPVs, based on resol-crosslinked EPDM/PP/oil blends. The following recent scientific developments will be discussed in detail: resol crosslinking chemistry, dynamic vulcanisation along the extruder axis, TPV morphology, elasticity model, oil distribution and TPV rheology. A series of scientific questions and technological problems, which are challenging future TPV developments, will be put forward at the end.