

**Dear Editor,**

Due to the flooding of the classic car market with cheap polyurethane bushes I contacted a professional with many years of experience in the industry for his opinion on the matter. He was very familiar with the production of the original bushes for the P6 as well as almost every other rubber item manufactured in the UK over the last 30 years. Printed below is his reply which I'm sure will be of interest to P6 owners. Interestingly the use of polyurethane bushes originated in Australia where a number of companies refuse to use these very same bushes from the UK. . . . .

“Dear Sir,

In reply to your enquiry concerning the relative merits of using polyurethanes in place of conventional rubbers in your rubber components:-

Firstly, polyurethanes are not used for the OEM's since the original equipment manufacturers are aware that the properties of urethanes are not directly comparable with conventional rubbers or intended to be substitutes for them. This is a very important point to bear in mind.

The particular type of urethane that you have bought to our attention is actually a thermoplastic polymer and not a fully cured elastomer, this means that it stiffens considerably in cold climates and has a tendency to flow (creep) under load when subjected to high temperatures because of the thermoplastic nature of the polymer. Its good points are in its outstanding abrasion and wear properties and it finds a major use as a hydraulic wiper seal in cylinders used in external hostile environments such as arms on road diggers, tractors etc. It also has outstanding bulk modulus properties many times stiffer than rubber like materials and therefore finds uses in items such as print rollers, slides and wheels on conveyors in non flammable situations, i.e lifts, elevators and underground applications. Its ability to chemically bond to other substrates such as metals in very limited but due to its high shrinkage and stiffness it would appear to be good in static applications where it has shrunk around the metal such as a tube. Its most severe drawback is when it is exposed to wet, warm and humid conditions where it undergoes a chemical decomposition by reaction with water called hydrolysis which completely destroys its key

properties. Its ability to absorb a wide range of frequency vibrations and deflection is most limited and in no way compares with conventional elastomer which is why it is never used on original equipment. Rover P6 suspension design was unique at the time and its development and designed specifically for use with Butyl and similar cured elastomer to give the correct damping and stability over the complete range of operating conditions that the cars were expected to encounter.

Polyurethanes cannot duplicate these properties and were never developed to compete with or replace elastomer, for they have their own unique properties and uses as indicated earlier. They can be produced cheaply by injection moulding hence their use in low tech products such as skate board wheels, etc.

Modern elastomeric compounds are greatly improved with much enhanced properties over similar polymers of twenty years ago and meet all present day vehicle requirements: You will not find urethanes used in today's demanding requirements for cars, except perhaps some kit cars, etc.

I hope this gives you some idea to the relative uses of thermoplastic compared to properly cured elastomer.

*This report is published for members' information, but in no way, can the club support or criticise the findings as no specific research has been done to which we have direct access. The letter was forwarded by a retailer of conventional rubber bushes.*

*The committee has seen polyurethane bushes which appear of good quality - although, as yet, to our knowledge, untested over lengthy P6 use. We have also been aware of some premature failures of conventional bushes remanufactured by various firms. Due to the method of fitting most bushes, failure of rubber to metal bonding is not likely to cause my sudden problem but may effect the effectiveness of the bush as a damping mechanism.*

*If anyone has any comments on either type of bush, we would appreciate your letters.*

**Editor**

**Dear John,**

May I congratulate you and the journalists on the new format of your newspaper which I find very enjoyable and it's also a very useful guide.

I thought it was time that you received some news from Southern