

## ***DOT 3, DOT 4 AND SUPER DOT 4 BRAKE FLUID***

From time to time the question of the use of DOT 4 and Super DOT 4 brake fluids in the systems of vehicles initially calling in the handbook for a DOT 3 fluid arises. One manufacturer in particular is very firm in their insistence on a DOT 3 type being used.

The first thing one normally thinks of in terms of brake fluids is the boiling point. There is a general acceptance that "the higher, the better" and therefore, from this viewpoint Super DOT 4 is better than DOT 4 which, in turn is better than DOT 3. Indeed the difference between the three specifications is in terms of the boiling point.

Another important area of brake fluid performance is the effect the fluid has on various types of rubber. In this testing the increase in diameter of a rubber cup, the softening of that cup and the degree to which the cup swells when in contact with the brake fluid are all evaluated.

Interestingly, all three fluid types, DOT 3, DOT 4 and Super DOT 4, have exactly the same specification in terms of their effect on rubber. Despite this, it seems that it is because of an adverse effect on rubber that manufacturers have been so insistent on the use of DOT 3 fluids in certain systems.

At first glance this appears quite illogical, the specifications all the same, but manufacturers insisting on one type. But a closer look at the specifications shows that it is not entirely without logic.

Specifications by their very nature allow a certain range of results, e.g. in the rubber testing referred to above the specification is met provided the swelling of the cup is between 1% and 16% (and the increase in diameter and softening have specifications just as wide). So that a brake fluid formulation can pass the specification at, say, 15% swell and potentially act quite differently in a particular brake system to a fluid which meets the specification at, say, 3% swell.

Penrite believes that those manufacturers who are so adamant about the use of DOT 3 have had bad experiences somewhere in the world with DOT 4 and/or Super DOT 4 fluids which differed markedly from traditional DOT 3 fluids in terms of their effect on rubber even though those fluids still met the specification claimed. The illogical part was for these manufacturers to immediately brand all DOT 4 and Super DOT 4 fluids as "bad".

Penrite maintains that a carefully formulated DOT 4 or Super DOT 4 will not produce these adverse effects on rubber. Testing of our Super DOT 4 formulation produces results in terms of the affect on rubber which are practically indistinguishable from those of DOT 3. Penrite has marketed DOT 4 fluid since 1996, changing to Super DOT 4 in 2000. In that time we have never had a problem in any brake system in any make of vehicle.

Penrite stands behind its products – we have no hesitation in continuing to recommend our fluid in all brake systems calling for Super DOT 4, DOT 4 or DOT 3.



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