Crumb Rubber Seal Trials – Comments by Paul Donovan

Following John Bethune's return from his study tour to the USA in 1975, it was decided to try some trials. Initially some laboratory tests were conducted at MRD and at ARRB (John Oliver).

In February 1976, first road trial was conducted on the Princes Highway at Hallam. The rubber was added to the binder through the top hatch of the sprayer by slowly adding and using various items (such as a small garden rake) to assist with breaking down any lumps that had formed. During mixing process there was a loss of binder temperature and the product was reheated. From memory about 1600 m2 of left lane was treated.

In the following 6 months there was a lot of development on how to add the rubber to the bitumen safely and easily. An open box was built added to the transfer line enabling the rubber to be added to the bitumen as it was being loaded onto the sprayer from the road tanker.

Many field trials were carried out with varied quantities of rubber and binder application rates. We found that once we got above 20 parts, workability become difficult and unachievable and the binder became extremely viscous. Resulting in the spraybar and jets blocking up causing long delays in output.

We also had problems with the grading of the rubber in the early stages the product was 16 mesh this caused many problems with blocked spraying jets. With further development the product was changed to 30 mesh which was much finer and this reduced the problem of blocked spraying jets.

For general road condition it was decided that the following was adopted,

HSS 5 parts / 100 litres using a factor of 1.1 addition to the binder rate

SAM 20 parts / 100 litres using a factor of 1.3 addition to the binder rate

Scrap Rubber then renamed Crumb Rubber in the 1980's

All of our trials were carried out by mixing in the sprayer which resulted the need for 2 spray units. Loading and mixing plus reheating usually took about 1 – 1.5 hours, one unit was spraying the other was loading and mixing.

In the late 1990's the RTA (NSW) obtained a large mixing vessel (shear mixer) about 10,000 litres that enabled a quicker turnaround. A few companies also got into the business of mixing large quantities up to 20,000 litres.

This process was excellent for larger jobs; however, it was not used by VicRoads as it was not viable for the mix of work and smaller jobs.