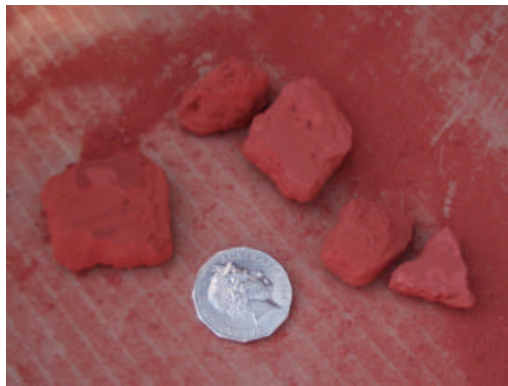




Eductor Retardant Mixer Phosbins – Blockage Issues

DSE is in the process of upgrading all retardant mixing equipment from the old mechanical mixers to the new eductor style systems. The airbases upgraded in past years include Mt Beauty, Delatite, Mallacoota, Avondale, and this year the program has continued with upgrades to Linga, Vic Valley, Snowy Range, Benambra and Delegate.

In the course of the current fire season, problems have arisen with blockages in the powder flow from the phosbins to the eductor. Further investigation has found lumps of hardened powder in the phosbins that have originated from contamination at the production plant in California, USA. These lumps, or 'phosrocks', are distinct from compressed powder as they have chemically hardened and cannot be crushed in your fingers. The average size of these phosrocks has been around 5cm long, 3cm wide and around 1cm thick. The mechanical action of the eductor is not capable of breaking these lumps and hence blocking occurs.



Not all phosbins have this problem. Investigation is underway to gather details on occurrences, and serial numbers to isolate production runs that have been contaminated. A system of sieving phosbins to strain out any phosrocks has been set up and re-sieving of old stock is underway.

In the course of investigation other factors contributing to eductor blockages have become apparent. Bases that were upgraded this year have an eductor head that includes a powder valve with a slightly reduced internal diameter compared to the powder tube. This slight reduction has resulted in a blocking point for any phosrocks in the powder stream. An upgrade kit is being prepared to modify the affected eductor systems and will be distributed shortly.

Aside from the phosrocks, there have been some reports of 'cricket balls' or ball shaped phosrocks being found in the phosbins. These lumps have a discrete spherical or half-spherical shape and are inconsistent with the problems found at the production plant. These are created by ingestion of water and vary in size from 2-10cm in diameter. The source of contamination has not been clearly established but would require a significant 'dollop' of water getting into the phosbin. The system of sieving during production will now remove any of these lumps that may be present in the bulk powder supply. This sort of contamination is quite possible as part of the distribution and handling of phosbins around the bases. A summary of handling techniques has been added below for the vigilance of airbase managers and crews.

Phosbin Distribution and Handling

- Phosbins must never be stacked on top of each other.
- Phosbins should never have any other objects stored or placed on top of them.
- When being transported by truck, Phosbins should be positively restrained to stop the veleron bags rubbing against hard edges and puncturing. Phosbins should have a tarpaulin over them to stop water exposure and also to stop top tails from whipping in the wind and ripping the bag near the wire tie.

- While the phosbins are waterproof in theory, they should not be exposed to water or left out in the rain. A common point of tearing the bag is around the wire tie and is hard to detect allowing any moisture on top of the phosbin to go straight in.
- Bins should always be placed on top of a pallet for storage and must never be put on ground with any surface moisture.
- Phosbins should not be outside and exposed to rain or strong wind. Strong wind will cause the top tails to flap and tear the bags.
- When receiving phosbins, they should each be thoroughly checked for any external damage or damage to the veleron bag. Any damage must be repaired with 'duct' tape immediately. Ensure the two plastic caps are properly in place and secure with tape if not already done. Cover the phosbins with black plastic pallet bags if available.
- Empty phosbins bases should be handled with care as they are re-used. The bases themselves are made from plastic and are easy to damage and expensive to replace. Be careful with the veleron bags; if they are in good condition they can be re-used.

Blockages to the eductor can cause serious interruption to retardant supplies during an incident and as such this problem is being addressed with the highest priority. In an effort to solve these issues as quickly as possible and operate in the meantime;

- (a) If a phosbin blockage occurs more than once or twice, discontinue using the bin and start a fresh bin. Continual blockages will cause highly diluted mixes and be unfit for use. Establish retardant mix ratios using the refractometer.
- (b) Record serial numbers of phosbins that cause problems and report these to the State Aircraft Unit, (details below). If possible, retain the phosrocks and put them in a bag labelled with the phosbin serial number.
- (c) Record serial numbers of all phosbins used. Information on good phosbins is just as useful as problem ones.
- (d) Isolate problem phosbins from other stock and have them returned to the Altona depot for re-processing.
- (e) Phosbins that have been produced using the sieving system have an 'X' appended to the serial number and are free of phosrocks. Use these phosbins in preference to old stock as they are distributed.
- (f) An upgraded version of the Eductor Retardant Mixer Operating Instructions will be available shortly covering techniques for dealing with blockages.

Further information:

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