

Exhibit 55

EVALUATION OF THE PARAQUAT SPRAY STRENGTH STUDY CONDUCTED WITH COMMERCIAL SPRAY EQUIPMENT

1. AIM OF STUDY

The study was designed to use a similar approach to that used in 1987 when rats were exposed to the “spray drift” from a commercial spray system operated within the long term inhalation facility. In this study spray strength Gramoxone, containing Agral surfactant, was used to generate the spray from which the fine aerosols fraction or “spray drift” was drawn into the exposure system.

Extensive preliminary trials were conducted which took into account:

1. The general design of the earlier study, i.e. The fine fraction of the spray generated from a commercially sprayer was drawn into the open front of a long term inhalation chamber, with the aim of exposing a group of rats in this region once all experimental parameters were evaluated and accepted.
2. The concentrations of paraquat ion collected and analysed in the rat exposure area.
3. The extensive knowledge and experience that CTL and RAD have on the inhalation toxicity of paraquat.

2. RESULTS

The rats were exposed to a mean analysed concentration of 0.15 ± 0.07 (range 0.257 - 0.048) $\mu\text{g/l}$ paraquat ion for 4 hours.

One animal (out of 10) was killed *in extremis* on day 3. Other animals, whilst showing clinical signs of respiratory tract irritation showed full recovery by the end of the observation phase. In the animal that died, there was no macroscopic evidence of adverse findings in the lung, which would be expected normally if the death was a consequence of pulmonary paraquat toxicity, although the clinical symptoms were similar to those characteristic of exposure to paraquat but may also reflect nasal/laryngeal local irritation effects. In the absence of adverse macroscopic pathology, no tissues were taken, therefore the absolute cause of death is unknown. However, this death cannot be attributed to paraquat alone - the extensive database from other inhalation studies shows that this result does not fall into the expected concentration range for death induced by paraquat.

3. EVALUATION

The previous study of this design and those conducted to determine the acute and sub-acute inhalation toxicity of PQ all used pure test material without additives. This study used Gramoxone to which the surfactant Agral had been added (nominally 0.1% in final spray solution). While the inhalation toxicity of Agral is unknown, it is a strong eye irritant and there is good correlation between this property of a chemical and respiratory tract irritancy. Hence it can be assumed that Agral is a strong respiratory tract irritant. It is not inconceivable, therefore, that the Agral present in the spray solution was responsible for or contributed to the toxicity seen in the study. Such a possibility is not without precedent. A number of past studies on formulations of paraquat and other pesticides which contained certain surfactants have resulted in toxicity and lethalties at atmospheric concentrations considerably below those expected from the toxicity profile of the active ingredient alone.

4. FURTHER WORK

If it is considered desirable or necessary to understand further the reason for the unexpected outcome of this study, additional work will be required and would include:

- repeating the study using a blank formulation to assess if the inclusion of the emetic, Agral etc. has a significant effect (with and without other surfactants in the formulation).
- repeating the study using only Agral in the spray solution.
- repeating the original study, investigating effects in some animals immediately after exposure and at day 3 to assess upper and lower respiratory tract effects - and any PQ residues in lung. This would include also pathology of the nasal cavity, larynx and lung.