Developments in formulation science mean that it has become a key technology which can differentiate an insecticide. Cobalt Advanced is a dual mode of action insecticide containing lambda cyhalothrin, a synthetic pyrethroid, and chlorpyrifos, an organophosphate. Cobalt Advanced is an EW (oil-in-water emulsion) formulation which is a practical and environmental improvement on EC (Emulsifiable Concentrate) formulations.

An EC conventionally contains one or more active ingredients, one or more emulsifiers and a solvent that does not mix in water. These solvents usually have very low solubility in water, a high capability of dissolving active ingredients and are potentially damaging to the environment. An EW still contains a solvent but in much lower amounts. An oil-in-water emulsion consists of tiny oil droplets containing the active ingredient dispersed into the water phase with which it does not mix. This process provides a temporary water barrier between the active ingredient and any surface in contact with the product. EWs are not only used in agriculture, but in pharmaceuticals, cosmetics, detergents and even food – mayonnaise is in fact a type of EW. The benefits of an EW in agricultural use are that these formulations tend to have lower skin and eye toxicity, are safer to transport and are more compatible with other chemicals.

**COBALT ADVANCED EW FORMULATION**

The EW formulation of Cobalt Advanced is further advanced by the use of latex encapsulation technology to hold the active ingredients out of the water. Once applied and the water evaporates, the latex technology releases the active ingredients to provide rapid knockdown. Figure 1 shows Cobalt under an electron microscope. It clearly shows the dispersal of encapsulated active ingredient droplets. Figure 2 shows a single latex encapsulated droplet which contains both active ingredients lambda cyhalothrin and chlorpyrifos.

Operator exposure to concentrated insecticides is a major concern and Cobalt Advanced represents a real step forward in this regard. The EW formulation of Cobalt Advanced offers farmers a lowering of risk on two fronts. The smooth flowing EW formulation is less prone to splashing than a traditional emulsifiable concentrate (EC) formulation and with only one product to measure and pour, the exposure risk is further mitigated. In terms of ease of use the water based formulation also offers a high level of compatibility with other products in the spray tank.

**SUMMARY OF BENEFITS OF THE COBALT ADVANCED EW FORMULATION**

- Reduced level of solvents (better for the environment and less toxic)
- Smooth flowing and easy to pour pre-mixed formulation
- Less volatility
- Improved operator safety
- High level of compatibility

For more information contact your local Dow AgroSciences representative on TOLL FREE 1800 700 096 or visit www.dowagrosciences.com.au

Figure 1

Figure 2