

## **DIAZINON REVIEW BACKGROUNDER**

**May 2007**

### **What is diazinon?**

Diazinon belongs to the organophosphate group of chemical compounds and is effective against a broad range of insects, spiders and mites. Products containing diazinon have been registered for use in Australia for over 30 years and are widely used in the control of sucking and chewing insects and mites on animals and plants.

The diazinon review affects seven active constituent approvals and 78 registered products in Australia.

### **What are diazinon products used for?**

Veterinary products containing diazinon are used to control external parasites on sheep, cattle and other farm animals and are also available as collars for companion animals.

To a lesser extent products containing diazinon are used in agriculture and horticulture for control of insects in crops, ornamentals, lawns, fruit and vegetables. Products containing diazinon are also used for control of insects in and around domestic, agricultural and public buildings.

The use of products containing diazinon for dipping or jetting sheep was suspended in Australia on 4 May 2007. Products containing diazinon continue to be approved for use on sheep as a wound dressing and flystrike treatment, and by backline application.

### **What were the previous review actions?**

The review of all existing approvals and registrations relating to diazinon commenced in December 1996. Since the commencement of the review, the NRA/APVMA has released the following reports:

In August 2000 the NRA released a draft report which outlined areas of concern and indicated that additional data were needed to address data gaps.

In September 2002 the NRA released a second draft report which included information concerning commitments given by user groups and registrants to generate additional data. It also reported revised findings resulting from comments and further information received by the APVMA.

In April 2003 the APVMA released the Review Findings for Part 1 that dealt only with the cancellation of certain products containing diazinon. The main group of products involved were those that were hydrocarbon-based formulations containing insufficient stabiliser to prevent the breakdown of diazinon into more toxic substances. The report also dealt with the cancellation of a small number of dog flea treatment products containing diazinon on the basis of environmental concerns related to disposal of these products in urban environments. The APVMA cancelled the registrations of these agricultural and veterinary products following the publication of this report.

In June 2006 the APVMA released the Preliminary Review Findings for Part 2 of the review. Part 2 dealt with the proposed regulatory approach for all remaining products affected by the diazinon review.

In May 2007 the APVMA suspended the use of products containing diazinon for dipping or jetting sheep, ahead of finalisation of other aspects of the review.

## **What are the concerns about diazinon and what does the APVMA propose to do about the concerns?**

Concerns raised in this review are that the use of products containing diazinon may in some situations, pose undue risks to workers, human health, trade and the environment. However the identified risks can be mitigated provided label instructions are amended as outlined below.

### ***1. Risks to product users***

The chemistry evaluation found that emulsifiable concentrates (ECs) containing diazinon may form toxic breakdown products following prolonged storage or if diluted in oil or kerosene.

The APVMA proposes to find that ECs containing diazinon should have a shelf life of not longer than 12 months unless adequate product-specific data are provided to support a longer shelf life.

The APVMA proposes that registrants will be required to supply container details to enable the APVMA to determine that these products are supplied in suitable containers e.g. 'glass or metal containers pre-coated with inert material inside (epoxy-lined)' in order to reduce the risk of formation of toxic breakdown products.

The APVMA proposes to delete the instructions for diluting ECs in oil or kerosene from product labels.

## **2. Risks to public health**

The toxicological evaluation found that all uses of diazinon in enclosed spaces (except mushroom housing where the risk can be mitigated by additional protective measures) as well as use for domestic pest control and turf treatments may pose an unacceptable risk of inhalation toxicity from volatilisation during and after application.

The APVMA proposes to delete all uses of diazinon in enclosed spaces (except mushroom housing) as well as use for domestic pest control and turf treatments.

## **3. Risks to worker safety**

### **Use on sheep (dipping/jetting)**

The occupational health and safety evaluation has found that the five main methods of application on sheep – portable and fixed plunge dipping, shower dipping and hand and auto race jetting – pose an unacceptable hazard for workers even when wearing personal protective equipment (PPE).

In May 2007 the APVMA suspended all product labels that include these uses, as an interim outcome, ahead of finalization of other aspects of the review.

### **Use on sheep (individual animal treatments/off shears backline treatment):**

The occupational health and safety evaluation found that products registered for use on sheep as wound dressings and/or for the treatment of individual sheep are unlikely to be a risk to workers, provided specified label restrictions and PPE are used.

The APVMA proposes to find that these use patterns are unlikely to be a hazard to workers exposed to diazinon, provided that:

- labels are amended to specify ‘Do not use this product for dipping or jetting sheep’, and
- adequate personal protective equipment are used, including the use of eye protection in the case of one product.

### **Use on other animals:**

The occupational health and safety evaluation found that products registered for use on cattle, goats, pigs, horses, dogs and in one case, ‘other animals’ are unlikely to be a risk to workers, provided specified label restrictions and PPE are used.

The APVMA proposes to find that these use patterns are unlikely to be an undue hazard to the safety of people exposed to products containing diazinon, provided that labels are amended to delete all claims that are not supported and provided that other specified label amendments are undertaken and PPE are used.

#### **4. Risks to the environment**

Consistent with the April 2003 cancellation of products that are flea shampoos for dogs, the APVMA has previously found the use of such products may pose a risk to the environment.

In addition the environmental assessment raised concerns that diazinon used on citrus, pastures, rice, sugar cane and stagnant water/ponds would also be likely to have an effect that is harmful to the environment.

The APVMA proposes to delete the uses of products containing diazinon as dog shampoos, and to delete use on citrus, pastures, rice, sugar cane and stagnant water/ponds in order to be satisfied that the use of products containing diazinon would not be likely to have an unintended effect that is harmful to the environment.

#### **5. Risks to consumers and risk to trade**

##### **Agricultural uses**

The residues assessment concludes that Maximum Residue Limits (MRLs) and appropriate withholding periods can be established for agricultural use of products containing diazinon on mushrooms, onions, pineapples and bananas only.

The APVMA proposes that all other agricultural uses be deleted from labels on the basis of inadequate residue data.

##### **Veterinary uses**

The APVMA has noted that the MRL entry for milk has recently been deleted in the United States. It is possible that diazinon residues in processed dairy commodities containing high fat levels such as cheese may pose a risk to Australia's export trade.

In the absence of additional information, the APVMA proposes to amend the directions for use of cattle ear tags to exclude use of these products on dairy cows producing milk for human consumption.

#### **What are alternative chemicals?**

There are alternative lice and fly control options available for use on sheep, including products containing the active constituents cyromazine, dicyclanil, diflubenzuron, magnesium fluorosilicate, spinosad and triflumuron.

The APVMA is currently evaluating new data which may enable the use of diazinon to continue in an automated cage dipping system currently operating in Australia. If the data demonstrate that use of diazinon products in the cage dipping system is safe for workers, the APVMA will issue a permit to operators of the cage dipping system, so that they can continue to dip sheep using diazinon products.

There are alternative pest control options available for agricultural uses.

## **What can users do?**

Product users can get additional information on alternative pest management strategies through State departments of agriculture.

The APVMA is also working with organisations such as Australian Wool Innovation and National Farmers Federation to develop modified management strategies.

## **Why has the APVMA suspended sheep dipping and jetting operations now? Why not earlier or later?**

The APVMA became aware of evidence showing that dipping and jetting sheep by traditional methods may have unacceptable impacts on the health and safety of rural workers in late 2004. The APVMA moved to publish its findings and proposed regulatory approach in mid 2006 after holding preliminary discussions with registrants, researchers, the veterinary profession, the States/Territories and user group representatives. Given the likely impact of this finding, the APVMA has widely consulted all sectors of the wool and sheep industry, communicating the findings and their implications and seeking further information to refine the regulatory approach, including the possible ongoing use of a cage dipping system.

The APVMA has concluded that the applicability of the research work to actual dipping and jetting practices is widely but reluctantly accepted. Thus the decision to discontinue dipping and jetting practices has not been taken lightly or without due care. Further, given the regulatory findings and their significance, it is appropriate for the APVMA to address this issue now, ahead of finalisation of other parts of the diazinon review.