**Thiamethoxam / Clothianidin: Advice on Residue definitions and MRLs**

*Syngenta Australia Pty Ltd* has submitted metabolism and residue trial information for thiamethoxam to the APVMA under section 161 of the AgVet Code to allow reconsideration of the residue definitions and MRLs for thiamethoxam and clothianidin. No changes to currently approved use patterns are required.

Clothianidin (the E-isomer of CGA 322704) is a metabolite of thiamethoxam and has been detected in commodities where no clothianidin MRL has been set as a result of registered uses of thiamethoxam. With E ↔ Z interconversion, CGA322704 appears the same as clothianidin in analytical methods. The 2010 JMPR, which reviewed a similar residues dossier to that available to the APVMA, concluded that clothianidin residues may arise from the use of clothianidin or from the use of thiamethoxam. Separate residue definitions are needed:

* For thiamethoxam
* For clothianidin (from uses of clothianidin) and CGA 322704 (from uses of thiamethoxam), appearing as clothianidin.

The following residue definition changes to Table 3 of the MRL Standard have been recommended:

**Table 3**

| COMPOUND | RESIDUE |
| --- | --- |
| DELETE: |  |
| **Clothianidin** | Clothianidin |
| **Thiamethoxam** | Commodities of plant origin: Thiamethoxam  Commodities of animal origin: Sum of thiamethoxam and N-(2-chloro-thiazol-5-ylmethyl)-N’-methyl-N’-nitro-guanidine, expressed as Thiamethoxam |
| ADD: |  |
| **Clothianidin** *see also* **Thiamethoxam** | Clothianidn |
| **Thiamethoxam** *see also* **Clothianidin** | Commodities of plant origin: Thiamethoxam  Commodities of animal origin: Sum of thiamethoxam and N-(2-chloro-thiazol-5-ylmethyl)-N’-methyl-N’-nitro-guanidine, expressed as Thiamethoxam  (Note: the metabolite clothianidin has separate MRLs) |

*It is noted that the current Codex definition for thiamethoxam for compliance with MRLs is thiamethoxam, the Codex definition for clothianidin is clothianidin.*

Residue trial data from overseas and Australia, where available, have been provided for all crop groups which currently have approved uses of thiamethoxam for the consideration of CGA322704 residues and appropriate clothianidin MRLs for use of thiamethoxam. The following MRL changes to Table 1 of the MRL Standard have been recommended:

Table 1

| COMPOUND | FOOD | MRL (mg/kg) |
| --- | --- | --- |
| Clothianidin |  |  |
| ADD: |  |  |
| GC 0080 | Cereal grains [except Maize; Popcorn and Sorghum] | \*0.02 |
| VB 0040 | Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassica | 0.5 |
| VL 0053 | Leafy vegetables | 0.7 |

New clothianidin MRLs have only been recommended for Cereals grains [except maize and sorghum], Brassica (cole or cabbage) vegetables, Head cabbages, Flowerhead brassicas and for Leafy vegetables. No changes are proposed to the clothianidin MRL for citrus, or that recently recommended in the Trade Advice Notice for product 60687.[[1]](#footnote-1) Cereal grains and citrus are major export commodities and require further consideration with respect to trade.

*Citrus*

The registered use of thiamethoxam on citrus involves application at up to 7.5 g ai/100 L (up to 2 applications) in conjunction with a 7 week harvest withholding period (Actara Insecticide, 56499).

Residues of CGA 322704 in whole citrus fruit at 42- 43 days after the last application of thiamethoxam at 7.5 - 10 g ai/100 L (1 – 1.3×) were <0.02, 0.02, 0.04 and 0.11 mg/kg. The current temporary MRL of T0.2 mg/kg for clothianidin on FC 0001 Citrus fruits should cover residues of CGA 322704 resulting from the use of thiamethoxam. (This MRL also covers the use of clothianidin on citrus under permits 81925 and 82831 (expire 31-Mar-2019)). It has recently been recommended that the temporary clothianidin citrus MRL be replaced with a permanent citrus MRL at 0.5 mg/kg to cover registration of a clothianidin use on citrus for product 60687. No further changes are required to this MRL to cover the use of thiamethoxam on citrus.

The current Actara Insecticide label (56499) advises that a 22 week withholding period should be observed for citrus fruit exported to markets where a lower MRL or no MRL has been set. Residues of CGA 322704 in citrus fruit in 2 trials investigating this WHP were <0.005 mg/kg after application at 1× and 2× proposed. The 22 week WHP for exported fruit should therefore ensure there are no residues of CGA 322704 and no additional risk to trade.

*Cereals (except maize and sorghum)*

The critical GAP for cereals involves seed treatment at 69.3 g ai/100 kg seed with a harvest withholding period of “Not required when used as directed” (Cruiser Opti Insecticide Seed Treatment, 65888).

EU trials involved thiamethoxam application at 52.7 – 78.4 g ai/100 kg seed (0.76 – 1.1×). Residues of CGA 322704 in cereal grain at harvest were <0.02 (57) and 0.02 mg/kg. The OECD calculator recommends an MRL of 0.02 mg/kg. Based on a weight of evidence approach, an MRL of \*0.02 mg/kg is recommended for clothianidin on GC 0080 Cereal grains [except Maize; Popcorn and Sorghum] to cover registered uses of thiamethoxam.

The risk to trade in cereal grains is low, noting also that no changes are proposed to currently registered uses and the lack of detections of clothianidin in samples of wheat, barley and oat grain analysed by the NRS in 2016/17.[[2]](#footnote-2)

1. https://apvma.gov.au/node/33001 [↑](#footnote-ref-1)
2. <http://www.agriculture.gov.au/ag-farm-food/food/nrs/nrs-results-publications> [↑](#footnote-ref-2)