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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Oxyfluorfen. Magnitude of the residue in Apple, Artichoke, Avocado, Cherry, Fig, Kiwi, Olive and Pomegranate. Reregistration Case No. 2490
Chemical No. 111601 MRID #43794001, 43794002, 43794003, 43794004, 43794005, 43794006, 43794007, and 43794008 DP Barcode D219897
CBRS #16313

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Rohm and Haas Company has submitted magnitude of the residue data for oxyfluorfen residues in/on apples (MRID #43794001), avocado (MRID #43794002), fig (MRID #43794003), pomegranate (MRID #43794004), kiwi (MRID #43794005), olive (MRID #43794006), artichoke (MRID #43794007), and cherry (MRID #43794008).

Tolerances are established for residues of the herbicide oxyfluorfen [2-chloro-1-(3-ethoxy-4-nitrophenoxy)-4-(trifluoromethyl)benzene] and its metabolites containing the diphenyl ether linkage in or on various commodities including artichokes, avocados, figs, kiwifruit, olives, pome fruits group, pomegranates, stone fruits group at 0.05 ppm [40 CFR §180.381 (a)].

The nature of the residue in plants has been adequately defined. The residue to be regulated

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is oxyfluorfen per se (S.Knizner, 4/8/94, CBRS #12513, 12522, 13212, and 13228). In the nature of the residue studies, tomatoes, onions, and peaches receiving 5X the maximal oxyfluorfen application rate had non-detectable residues of oxyfluorfen.

Recommendations

Pending receipt of acceptable storage stability data, the magnitude of the residue studies for apples, avocado, fig, pomegranate, kiwi, olive, artichoke, and cherry are acceptable. In conjunction with the oxyfluorfen RED, tolerances can be revised to 0.01 ppm for these commodities. Based on the results of the cherry magnitude of the residue study and the peach metabolism study, adequate data are available to support revision of the stone fruits group tolerance to 0.01 ppm. Based on an apple metabolism study (MRID #00160143) discussed in the Phase 4 Review (3/16/91) showing lack of translocation of oxyfluorfen from soil to apple trees, and the currently submitted apple magnitude of the residue data, adequate data are available to support revision of the pome fruits group tolerance to 0.01 ppm.

Detailed Considerations

Analytical Method Method TR 34-94-150 was used for all sample analyses. Briefly, this procedure involves extraction of residues with ACN, followed by liquid-liquid partition, silica gel column chromatography, and basic alumina solid phase extraction. Oxyfluorfen residues are quantitated using GC/ECD. Controls and freshly fortified samples were run with all analyses to validate the analytical procedure. The registrant claimed a 0.003 ppm limit of detection and demonstrated a 0.01 ppm limit of quantitation. Representative chromatograms were provided for standards, fortifications, and samples. McKenzie Laboratories conducted analysis of apple samples and Center Analytical Laboratories, State College, PA, conducted analysis of all other samples.

Apple (MRID #43794001)

Test System Field trials were conducted in WA (1), MI (1) and VA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of the tree at 2.0 lb ai/A. Application was made to dormant trees (in March or April) and fruits were harvested with a 155-197 day PHI (in September or October).

Storage Stability Samples were stored from 269 to 287 days from sampling to analysis. The registrant stated that a three year storage stability study entitled "Storage Stability Study: Oxyfluorfen in Apples, Alfalfa, Almond Nuts and Hulls, Banana Pulp, Cabbage, Wheat Grain, and Soil" was completed in 5/95 and this study demonstrated no significant decline in oxyfluorfen residues in any of the crop matrices analyzed. A final report is currently being submitted to the Agency.

Results

Concurrent Fortifications - For fortifications at 0.01 to 0.50 ppm (n=12), percent recovery ranged from 74.2 to 93.4% (average 82.7%), with one exception, a recovery of 40.2 % for a 0.10 ppm fortification.

Samples - All samples analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Avocado (MRID #43794002)

Test System A field trial was conducted in CA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of the tree at 2.0 lb ai/A. Application was made to dormant trees (in January) and fruits were harvested with a 241 day PHI.

Storage Stability Samples were stored for 272 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01 to 0.50 ppm (n=12), percent recovery ranged from 51.4 to 112%, with an average of 93.9%.

Samples - The sample analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Fig (MRID #43794003)

Test System A field trial was conducted in CA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of the tree at 2.0 lb ai/A. Application was made to dormant trees (in February) and fruits were harvested with a 206 day PHI.

Storage Stability Samples were stored for 306 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.10 and 0.50 ppm (one at each level),

percent recoveries were 90.1, 98.5, and 88.8% respectively.

Samples - The sample analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Pomegranate (MRID #43794004)

Test System A field trial was conducted in CA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of the tree at 2.0 lb ai/A. Application was made to dormant trees (in February) and fruits were harvested with a 241 day PHI.

Storage Stability Samples were stored for 268 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.10 and 0.50 ppm (one at each level), percent recoveries were 76.4, 100, and 84% respectively.

Samples - The sample analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Kiwi (MRID #43794005)

Test System A field trial was conducted in CA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of non-dormant vines at 2.0 lb ai/A. Fruits were harvested 255 days after treatment.

Storage Stability Samples were stored for 268 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.02, 0.05, 0.10 and 0.50 ppm (n=12), percent recoveries ranged from 64.4 to 104% (average 90.5%).

Samples - The sample analyzed had non-detectable residues (<0.01 ppm). All

chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Olive (MRID #43794006)

Test System A field trial was conducted in CA (1). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of non-dormant trees at 2.0 lb ai/A. Olives were harvested 222 days after treatment.

Storage Stability Samples were stored for 288 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.10 and 0.50 ppm, percent recoveries were 91.5, 105, and 93.8% respectively.

Samples - The sample analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Artichoke (MRID #43794007)

Test System Field trials were conducted in CA (2). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil between artichoke rows at 2.0 lb ai/A. Artichokes were harvested 5 days after treatment.

Storage Stability Samples were stored for 444 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.02, 0.05, 0.10 and 0.50 ppm (n=11), percent recoveries ranged from 68.3 to 127%, with an average of 94.0%.

Samples - The samples analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

Cherry (MRID #43794008)

Test System Field trials were conducted in WA (2). A single directed spray of GOAL 1.6E (lot #2-2090, 21.5% oxyfluorfen) was made (CO₂ backpack sprayer) to the soil and base of dormant trees at 2.0 lb ai/A. Cherries were harvested 100 days after treatment.

Storage Stability Samples were stored for 1123 days from sampling to analysis.

Results

Concurrent Fortifications - For fortifications at 0.01, 0.02, 0.05, 0.10 and 0.50 ppm (n=11), percent recoveries ranged from 72.5 to 109%, with an average of 86.5%.

Samples - The samples analyzed had non-detectable residues (<0.01 ppm). All chromatograms were provided.

CBRS concludes that the submitted study is fully adequate pending receipt of adequate storage stability data.

cc: S.F., circ., R.F., List B File, S.Knizner
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