List B File

Case No.: 2395
Chemical No(s).: 13803

3-28-91

CBRS TRANSMITTAL SHEET FOR PHASE 4 REVIEWS

Transmitted to HED on 8/31/90

DEB Nos. 6974, 7058, 7072, 7215

Case name: Methanearsonic acid and salts
Chemical Name(s): Monosodium methanearsonate (MSMA)
Data submitter(s): Luxembourg Industries (Pamol), Ltd.

CRM: Betty Crompton Phone #: 308-8067

Issues/flags:

This action contains a request for a DATA WAIVER ( )
TIME EXTENSION ( )
ALTERED/DELETED USE ( )

Other: LUIS output dated 2/16/91 and product labels were used as sources of use information.

Branch: CBRS, Phase 4 Review Team

Reviewed by: Christine L. Olinger CLO Date: 3-26-91

CLO 3/26/91

Approvals:

Section Head: Andrew R. Rathman ARR Date: 3/27/91

Branch Approval: Edward Zager Edward Zager Date: 3/28/91

cc: CLOlinger, List B File, Circ., B. Grim (EFED), C. Furlow (FOD/PIB), RF

Response, by Guideline

Guideline #: 171-3 Description: Directions for Use
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Product labels require several modifications as outlined below under "Data Gap".
Data Gap: All product labels with cotton as a use site must prohibit feeding treated foliage to livestock. For citrus and non-bearing orchard crop use, a restriction prohibiting livestock grazing in treated orchards must be on the label. A pre-harvest interval for bearing citrus uses should be added to the label. Product label 7401-185 should specify the permitted use site(s); currently the label states "General Weed Control". All product labels with cotton and/or citrus as a use site should state "No more than three applications of MSMA or DMSA may be made per growing season". All product labels should specify a maximum number of applications and a retreatment interval. These parameters must reflect those used in the crop field trials.

Guideline #: 171-4(a) Description: Nature of residue - plants
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study.
Data Gap: The registrant must provide three new plant metabolism studies. Monosodium methanearsonate labelled in a non-labile part of the molecule should be applied to cotton, a grass, and a citrus fruit reflecting the currently registered use. The specific activity and/or application rate should be high enough to allow for adequate identification of the metabolites/ degradates. The plant material from the metabolism study should be tested using the data collection method(s) and enforcement analytical method(s).

Guideline #: 171-4(b) Description: Nature of residue - animals
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study.
Data Gap: The registrant must provide poultry and ruminant metabolism studies. Monosodium methanearsonate

labelled in a non-labile part of the molecule should be fed to the livestock for a minimum of three days. Orally treated test animals must be sacrificed within 24 hours of the final dose. The dose administered and the specific activity should be high enough to allow for adequate identification of the metabolites/ degradates. The tissues from the metabolism study should be tested using the data collection method(s) and enforcement analytical method(s).

Guideline #: 171-4(c) Description: Res. analyt. method - plant
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study. Multi-residue method testing will not be required since recovery of monosodium methanearsonate through any of the protocols is unlikely.
Data Gap: The registrant must submit data collection and regulatory analytical method(s) for the determination of monosodium methanearsonate in/on plant matrices. If new metabolites (which require regulation) are found in the new plant metabolism studies, then analytical method(s) must be developed for them as well. Any regulatory methods submitted will require an independent method validation as described in PR Notice 88-5 (July 15, 1988).

Guideline #: 171-4(d) Description: Res. anal. method - animals
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study. Multi-residue method testing will not be required since recovery of monosodium methanearsonate through any of the protocols is unlikely.
Data Gap: The registrant must submit data collection and regulatory analytical method(s) for the determination of monosodium methanearsonate in/on animal commodities. If new metabolites (which require regulation) are found in the new animal metabolism studies, then analytical method(s) must be developed for them as well. Any regulatory methods submitted will require an independent method validation as described in PR Notice 88-5 (July 15, 1988).

Guideline #: 171-4(e) Description: Storage stability
Is requirement applicable? (Y/N): Y

Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study.
Data Gap: Storage stability studies must be conducted on all crops and processed products for which a field trial and/or processing study has been (or will be) conducted, as well as representative livestock commodities. Use of field-weathered samples is strongly recommended. Storage conditions must reflect the storage conditions of the treated samples (from the field trial and processing studies) with respect to temperature, length of storage, containers, lighting, etc. If there are any metabolites and/or degradates included in the tolerance expressions, then they must be tested as well. The chosen intervals must allow for unforeseen delays in sample storage.

Guideline #: 171-4(f) Description: Mag. res. - potable water
Guideline #: 171-4(g) Description: Magnitude residue - fish
Guideline #: 171-4(h) Description: Mag. res. - irrigated crop
Guideline #: 171-4(i) Description: Mag. res. - food handling
Are requirements applicable? (Y/N): N

Guideline #: 171-4(j) Description: Mag. meat/milk/poultry/eggs
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study.
Data Gap: Monosodium methanearsonate must be fed to dairy cattle and poultry for a minimum of 28 days or until residues plateau in the milk or eggs, whichever is longer. Following oral treatment, test animals should be sacrificed within 24 hours of the final dose. Feeding levels should be determined based on the latest crop residue data generated or to be generated. Animals should be fed at levels of 1X, 3X, and 10X the maximum dietary burden. When determining the feeding levels the registrant should consider the maximum crop residue levels possible and the dietary burden based on Table II Subdivision O - Residue Chemistry Guidelines.

Guideline #: 171-4(k/l) Description: Cotton field trials/process
Are requirements applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to conduct the study.
Data Gap: Data depicting residues of monosodium methanearsonate

and the regulated metabolites in/on cotton must be submitted. A representative aqueous formulation must be applied at the maximum label rate, the maximum number of applications, the minimum retreatment interval, and the minimum PHI. These parameters are specified in Table 1. The use of aerial and ground equipment must be represented in separate tests. The states in which the tests must be conducted are also listed in Table 1.

A processing study must be conducted for cottonseed. Cottonseed bearing detectable residues of the parent and the regulated metabolites should be processed into meal, hulls, soapstock, crude oil, and refined oil to determine the residue concentration or reduction factor(s). If the cottonseed is treated at exaggerated rates equivalent to at least the maximum theoretical concentration factor due to processing and no detectable residues are found on the RAC, then processing studies are not required.

Guideline #: 171-4(k/l) Description: Citrus field trials/process
Are requirements applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has committed to cost share.
Data Gap: Data depicting residues of monosodium methanearsonate and the regulated metabolites in/on lemons, oranges, and grapefruit must be submitted. A representative aqueous formulation must be applied at the maximum label rate, the maximum number of applications, the minimum retreatment interval, and the minimum PHI. These parameters are listed in Table 1. The use of aerial and ground equipment must be represented in separate tests. The states in which the tests must be conducted are also listed in Table 1.

A processing study must be conducted for a representative citrus fruit. The commodity bearing detectable residues of the parent and the regulated metabolites should be processed into dried pulp, oil, molasses, and juice to determine the residue concentration or reduction factor(s). If the commodity is treated at exaggerated rates equivalent to at least the maximum theoretical concentration factor due to processing and no detectable residues are found on the RAC, then processing studies are not required.

Guideline #: 171-4(k/l) Description: Crop field trials/process
Commodity: Grasses grown for seed
Is requirement applicable? (Y/N): Y
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has not addressed this use site.
Data Gap: Data depicting residues of monosodium methanearsonate and the regulated metabolites in/on grasses must be submitted. A representative aqueous formulation must be applied at the maximum label rate, the maximum number of applications, and the minimum PHI. The test parameters are listed in Table 1. The use of aerial and ground equipment must be represented in separate tests. The states in which tests must be conducted are also listed in Table 1.

A processing study must be conducted for grasses. Grasses bearing detectable residues of the parent and the regulated metabolites should be processed into seeds and seed screening to determine the residue concentration or reduction factor(s). If the grass is treated at exaggerated rates equivalent to at least the maximum theoretical concentration factor due to processing and no detectable residues are found on the RAC, then processing studies are not required.

Guideline #: 171-4(k/l) Description: Crop field trials/process
Commodity: Non-bearing Orchard Crops
Is requirement applicable? (Y/N): N - see discussion
Does the summary/available information indicate that the MRID is a candidate for Phase 5 review?: N/A
Discussion: Registrant has not addressed this use site. Residue data are not needed if product labels are modified as described below.
Data Gap: Product labels with non-bearing orchard crops as use sites must be modified to include the following statement: "Treated crop may not be harvested within one year of application."

ADDITIONAL COMMENTS:
The registrant is advised to consult the Subdivision O Residue Chemistry Guidelines, the Standard Evaluation Procedures, the Data Reporting Guidelines, and the Phase 3 Technical Guidance concerning conduct of residue chemistry studies. If the registrant has additional concerns they are advised to submit a protocol for CBRS review.

Table 1. Test Parameters for Crop Field Trials

Crop	States[1]	Appl. Rate lb a.i./A	Timing	Equip. A, G, C[2]	Max. No. of Appl.	Retreatment Interval, days	PHI, days
Cotton	TX, CA, AZ, MS, LA	2.0	1)pre-plant or post-plant to cracking; broadcast application	G,A	3	7-21	NS[3]
		1.0	2)post-e 3-6" or 1st squares; broadcast application	G,A			
		2.0	3)post-e 3" to 1st bloom, directed application	G			
Orange	FL, CA	4.0	NS	G	3	NS	NS[4]
Lemon	CA, AZ						
Grapefruit	CA, FL, TX						
Bluegrass	ID, OR, WA	6.0	Post weed emerg. before boot stage	G,A	1	N/A	NS
Fescue	MO[5], OR/WA						
Ryegrass	OR, WA						

[1]If a slash appears between states then either site may be chosen.

[2]A = aerial, G = ground, C = chemigation.

[3]NS = Not specified on product labels.

[4]PHI has not been specified on label. Labels should be amended to reflect PHIs from crop field trials.

[5]Data are required from all major growing areas unless a tolerance with regional registration is sought.

PRODUCT CHEMISTRY

Case Name: Methanearsonic acid and salts
Chemical Name(s): Monosodium methanearsonate (MSMA)
Registrant: Luxembourg Industries (Pamol), Ltd.

Guideline Number	Is requirement applicable?	Does summary or available information indicate MRID is a candidate for Phase 5 review?	Are additional data required?	MRID Number[a]
61-1	Y	N[b]	Y[b]	U[b]
61-2(a)	Y	N[c]	Y[c]	U[c]
61-2(b)	Y	Y	N	41602701
62-1	Y	Y[d]	N	41602702
62-2	Y	N[e]	Y[e]	U[e]
62-3	Y	N[f]	Y[f]	U[f]
63-2	Y	P	Y[g]	41608107 41610001[g]
63-3	Y	P	Y[g]	41608107 41610001[g]
63-4	Y	P	Y[g]	41608107 41610001[g]
63-5	Y	N/A	Y[h]	N/A
63-6	Y	Y	N	41608107
63-7	Y	N[i]	Y[i]	U[i]
63-8	Y	Y	N	41610001
63-9	Y	Y[j]	N	41651901
63-10	Y	Y	N	41610001
63-11	N[k]	N/A	N/A	N/A
63-12	Y	N[l]	Y[l]	U[l]
63-13	Y	N[m]	Y[m]	U[m]

Key: Y=yes; N=no; I=a decision cannot be made at this time; S=fully satisfies requirement; P=partially; N/A=not applicable; U=unsatisfactory.

[a]MRID No. is not listed if study or summary are found to be inadequate.

[b]A revised Confidential Statement of Formula with impurities associated with the improved process must be submitted.

[c]Additional description of the manufacturing process must be submitted including amount of each reactant, temperatures, and pressures.

[d]Acceptance of this study is contingent upon submission of information required for 61-1, 61-2(a), 61-2(b), 62-2, and 62-3.

[e]A revised CSF must be submitted as described previously.

[f]The descriptions of the analytical methods needs to be more complete, including a discussion on the theory of the analytical method.

[g]Registrant has provided data for solid TGAI. MRID No. for study itself has not been provided.

[h]Registrant has agreed to isolate a monosodium salt in order to test the melting point.

[i]Density has been determined only on the 51% technical and a saturated MSMA solution. The density of the MSMA salt must be determined.

[j]The vapor pressure of only methanearsonic acid was determined. CBRS concurs with the registrant that the vapor pressure of the salts would be less than that of the acid, so no further data are required.

[k]The registrant has demonstrated that the polarity of the active ingredient precludes the need for this study.

[l]CBRS cannot determine adequacy of study since test method was not reported. The registrant should explain the discrepancy between the pH reported in MRID No. 41610001 (pH = 5.5-5.9) and MRID No. 416081-07 (pH = 6.69). Both studies claim a 51% solution was tested.

[m]Only stability to zinc was tested; stability to iron should be tested as well. The solid, pure TGAI must be used as test material, not the 51% solution as was done in the study submitted.