



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 25 1986

Memorandum

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Subject: 4581-322. Protocol for Processing Study for
Potatoes Treated with Thiophanate-methyl (Topsin®
M 70W).
RCB #1304

From: Michael S. Metzger, Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

Michael S. Metzger

Thru: Edward Zager, Section Head, SRS 2
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

E Zager

To: Henry M. Jacoby, PM 21
Registration Division (TS-767C)

The Agrochemicals Division of Pennwalt Corporation submits protocol for a processing study for potatoes treated with thiophanate-methyl [dimethyl-[(1,2-phenylene)-bis-(iminocarbonothioyl)]-bis-(carbamate)]. Protocols are submitted for processing of potatoes to produce potato chips, granules and flakes. The entire submitted protocol follows.

PROTOCOL FOR THE PROCESSING OF POTATOES
INTO DEHYDRATED PRODUCTS AND CHIPS

Potato Chips (15 to 20 lbs. of raw potatoes per sample)

Potatoes will be peeled by the abrasion method. Samples of the peels and the raw potatoes will be composited for residue analysis. The raw potatoes will be sliced into 1/15 - 1/30" slices, washed, and leached in hot water (1 minute at 190°F). Samples of the washed, leached potatoes will be composited for residue analysis. The slices will be fried in vegetable oil at 350°F until crisp. Samples of the chips will be composited for residue analysis.

Potato Granules (15 to 20 lbs. raw potatoes per sample)

Potatoes will be washed and peeled. Samples of the peels and the raw potatoes will be retained and composited for residue analysis, the peeled potatoes will be washed and diced, then

cooked in boiling water for 15 minutes, drained and cooled to room temperature for one hour. The potatoes will be dried in a forced air oven at 100°F until moisture content is 6%. Samples of the finished potatoes will be composited for residue analysis.

Potato Flakes (15 to 20 lbs. potatoes per sample)

Potatoes will be washed and peeled. Samples of peels and washed potatoes will be composited for residue analysis. They will be diced and cooked for 15 minutes in boiling water, drained and mashed. The mashed potatoes will be dried in a forced air oven at 100°F until completely dry.

We will comment on the protocol submitted as well as other important aspects of the processing studies not discussed in the submitted material.

Pesticide Application

The pesticide should be applied to potatoes using the application methods described in the proposed use. The application rate should be sufficiently high so that some residues in the raw agricultural commodity (unpeeled potatoes, rinsed to remove dirt and loose material but not thoroughly washed or brushed) will be at or near the proposed tolerance (detectable residues of each compound in the residue of concern should be present- see below). This may require pesticide applications at exaggerated rates. This is necessary to allow the calculation of concentration factors in the processed commodities. Records of field treatments should be submitted with the processing study and should include application rates, number of applications, intervals between applications, application methods (aerial, ground, total volume, etc.), PHI and storage and handling conditions.

Residue Determination and Analytical Method

Some of the potatoes used in the processing study should contain field-treated detectable residues at or near the proposed tolerance level. All samples should be stored frozen until processing. Additionally, residue data generated on stored samples should be accompanied by storage stability data obtained by fortifying control samples and storing them under the same conditions as treated samples (eg. temperature, humidity, time, etc.).

Analytical methods used to determine residues in raw agricultural commodities and processed commodities should be capable of determining all compounds contained in the residue of concern

(parent thiophanate-methyl, its oxygen analog and its benzimidazole-containing metabolites; 40 CFR 180.371). Residue data should be accompanied by validation data including fortification/recovery data, representative chromatograms (if applicable), detailed method descriptions, etc. (see C. Trichilo, 1/29/86).

Processing

All three processing protocols (i.e. chips, granules and flakes) state that samples of peels and "raw potatoes" will be composited for residue analysis prior to further processing. Rather than these residue analyses being done, analyses should be performed on the following samples:

From Chip Process:	Raw Commodity (unpeeled potatoes, rinsed to remove dirt but not thoroughly washed or brushed) Slices (after washing/peeling/leaching) Chips
From Granule Process:	Raw Commodity Cooked (after washing/peeling/slicing) Granules
From Flake Process:	Raw Commodity Cooked (after washing/peeling/slicing) Flakes

Comments will be made below for the individual processes.

Potato Chips

Other than considerations previously discussed, the processing protocol for potato chips is adequate.

Potato Granules

Some modifications should be made to this protocol. Rather than dicing and cooking potatoes in boiling water for 15 minutes, potatoes should be sliced 5/8 to 3/4" thick and cooked 30 to 40 minutes in steam at atmospheric pressure. Following cooking, potatoes should be mashed and then dried.

Potato Flakes

Rather than being cooked in boiling water for 15 minutes, peeled potatoes can be pre-cooked for 20 minutes in 160°F water followed by cooking in steam at atmospheric pressure for 30 to 40 minutes. Potatoes should then be riced and dried to approximately 5-6% moisture content (rather than mashed and dried completely).

cc:Thiophanate-methyl, S.F., R.F., Agricultural Practices
(potatoes) S.F., Circu, M. Metzger, PMSD/ISB
RDI:E.Zager:EZ:8/21/86:RDS:8/21/86
TS-769:RCB:M.Metzger:MM:Rm814a:CM#2:8/21/86