DATE: 9/12/77

SUBJECT: Glyphosate, product name CP70139, EUP (524-EUP-24) and PP's (6G1757 and 6H5125) TB evaluation with respect to nitrosamine content.

FROM: TB/RD

TO: Ms. Libby Zink
Special Registration

The EUP and PP's were asked for TOX evaluation in memo of 8/3/77. Toxicity data relating to it were only obtained on 9/12/77. To expedite handling of this request, and for reasons evident below, we are sending an abbreviated review.

Data from Monsanto (glyphosate manufacturer) show that CP 70139 (=Mon-0139) has ca. 0.1 ppm N-nitrosoglyphosate (Special Report #478, May 6, 1977, "Toxicology, Crop Residue and Metabolism Studies of (glyphosate) N-nitrosoglyphosate," Vol. 2, Sec. D-III, Fig. 3). Other Roundup formulations are said to have 0.2-0.4 ppm N-nitrosoglyphosate (NNG).

According to Monsanto (ltr. of 7/1/77, L. Hannah to Director, RD/EPA), glyphosate which was used in long-term feeding studies/oncogenic studies (PP 5F1536) has recently been found by chemical analysis to contain 0.1 ppm N-nitrosoglyphosate, and therefore this much glyphosate has been tested and found "negative" for tumorigenicity.

Nitrosoglyphosate (NNG) was tested for mutagenicity in an Ames-type system, using positive controls each time, both in presence and absence of rodent liver enzyme fraction which might metabolize it to an "active" mutagen. In each case, results were negative (Special Report #478 - see above - Sec. C, Part B, "Mutagenicity Evaluation of BIO-76-116; LOT T-701," by Litton Bionetic, Inc., Kensington, Md., LBI Project No. 2547, 6/22/76).

Summary: Formulation of concern (CP 70139; EPA reg. no. 524-318; Mon-0139) appears to have of the order of 0.2-0.4 ppm N-nitrosoglyphosate (NNG). Technical glyphosate which was found "negative" in oncogenicity studies is now known to have 0.1 ppm NNG in it (therefore, also, "negative"). NNG is negative for mutagenicity, tested both with and without liver enzyme "activators," in Ames-type test.*

RECOMMENDATION:

Based on data summarized above and on other considerations, TB recommends for (a) Extension of 524-EUP-24 for one year (only), ie., from 9/7/77 to 9/7/78 (concurred in by Dr. O. E. Paynter, Chief, TB/RD, in discussion with the undersigned, 9/12/77) and (b) Extension of temporary tolerances 6G1757 and 6H5125 for one year. However all supporting studies (carcin., chron., repr., terat., mutag.) on glyphosate are from IBT,

* Other studies in Special Report #478 comprising (in Sec. C, Parts A, C, D, and E - oral LD_{50}, dom.-lethal, teratologic, and hamster feeding (status rept at 6 mos), are not now reviewed; they are from Younger Labs and IBT, except for Part E.

EPA Form 1320-6 (Rev. 1-76)

Submitted by Mary L. Quaife, Ph.D., TB/RD, 9/12/77