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EPA #	Date	Product Name	Use Classification	Toxic Category
521-508 524-308	5/2/77	Roundup [CP-70139 formulation (MON-2139)]		II-Warning

RECOMMENDATION: ☒ register ☐ other (explain)

TB can recommend for the EUP only after the question of possible presence of nitrosamines in this formulation, as well as their toxicologic significance (if present), is settled. This awaits, as a first step, issuance of an EPA "position" on nitrosamines.

Acute Oral (Rat)	LD50	TECH	FORMULATION	USE DILUTION	DATE/ACCEI ABL
			Greater than 4.04 g/kg**	4.04 g/kg** (3.46-4.46 g/kg)	Yes

Toxic signs: Lung hyperemia, liver discoloration, and acute gastrointestinal inflammation, preceded by lethargy, with necrosis of stomach.

Comments: * Monsanto Proj. #Y-71-150, test on CP-70139 form. (MON 2139), 10/7/71, Younger Labs., St. Louis, Mo.

** Monsanto Proj. #Y-72-160A, test on MON 2139, 10/2/72, Younger Labs., St. Louis, Mo.

Acute Dermal (Rabbit)	LD50	Greater than 7.9 g/kg	Yes
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Toxic signs:

Comments: Test, Monsanto Proj. #Y-71-150, done on CP-70139 form. (MON 2139), 10/7/71, Younger Labs., St. Louis, Mo.

Acute Inhalation ()	LC50	8.0 mg/liter	12.2 mg/liter	Yes
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Toxic signs: None; no gross pathologic alterations.

Comments: IBT No. T2279 on MON-2139, 4-hr. exposure, nominal concn.

IBT No. 663-06290 (BTL No. 74-116A), 5/20/75
on "tech. Roundup" 8.0 mg/kg, nominal concn., 6-hr. exposure.

* NOTE: Source is PP 6G1679, Sec. C, Pt. S. See C of this EUP application lists this as a study on Roundup formulation, MON-2139.

Primary Eye Irritation (Rabbit) Draize score:	Category II	Yes
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Comments: Study at U. of Miami (Deichmann), eyes read by board-cert. ophthalmol., John Holly M.D. Test on "Round-up, 4 lbs isopropylamine salt of glyphosate/gallon." Results: No corneal opacity; slight irritation in 2/6 rabbits at 10 days—R. Coberly, TB/RD, memo of 12/3/75, copy attached.

Primary Skin Irritation (Rabbit) Draize score:	2.3/8, 24 hrs.	Yes
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Comments: No irritation at 120 hrs. Av. Max. score = 2.3/8. Formulation is a mild irritant applied to intact skin.

Monsanto Proj. #Y-71-150, test on CP-70139 form (MON 2139), 10/7/71, at Younger Labs., St. Louis.

Other Studies: EYE Irritation, on CP-70139 form. (MON 2139), each at Younger Labs., St. Louis

Monsanto Proj. #Y-74-56, 3/15/74 (PP 5F1536, Sec. C., Pt. E). Results: Tested undil. in 6 rabbits, acc. to FHSA, av. max. score = 18/110 at 1 hr.; 0 at 7 days; and no corneal opac.

Monsanto Proj. #Y-74-74, 4/1/74, (PP 5F1536, Sec. C., Pt. E). Results: Tested undil. in 6 rabbits, acc. to FHSA, av. max. score = 18/110 at 1 hr.; 0 at 7 days; and no corneal opaci

Monsanto Proj. #Y-71-155, 10/27/71 (PP 5F1536, Sec. C, Pt. E). Results: Tested undil., was after 15 or 30 mins., av. max. scores = 16/110 and 15.3/110 (each at 1 hr.). Tested as 5% aqueous solution, eyes washed at 15 or 30 mins. or 24 hrs., av. max. scores = 12/110, 12.6/110, 11.3/110, respectively (each at 1 hr.).

Monsanto Proj. #Y-75-150, 7/10/75 (PP 6G1679, Sec. C, Pt. W) on MON 2139 (lot QHD-13), max. score = 5.6/110 at 1 hr.

Proj. # 51-72-19 (described in PP 5F1536, Sec. C, Pt. P). Test on MON 2139, done at Shelanski Holding Co., Conshohocken, Pa., 1/11/73.

Tested as 1:45 dilution on 50 human subjects. 0.9 ml in contact with skin on arm of each subject, "occluded" for 24 hrs., on M, W, F each for 3 weeks. Challenge appl. at same site after 2 weeks.

Results: Did not show characteristics of primary irritant, fatiguing agent, or sensitizer. Statistically: "At least 92.89% of general population will not be sensitized with 95% certainty."

1-day Dermal Toxicity Study

IBT No. A1549 (described in PP 5F1536, Sec. C, Pt. F). Test on MON 2139, done at Industrial Bio-Test Labs., Inc., Northbrook, Ill., 7/18/72.

Groups of 10 each albino rabbits had applied to the skin, occluded, for 6 hrs/day, 5 days/wk for 3 weeks either no treatment; 37.9 mg/kg, intact skin; 37.9 mg/kg, abraded skin; 189.5 mg/kg, intact skin; or 189.5 mg/kg, abraded skin - these two dose levels, being said to equal 1 x and 5 x use conditions.

Results: At top dose level, 3/10 with intact skin and 2/10 with abraded skin died. They were emaciated and hypoactive. Deaths, attributed to "naturally-occurring disease, incidence and severity of which....increased due to severe local skin reaction." Both dose levels irritating to skin. All treated animals lost weight. Total WBC's and % ~~neutrophils~~ ^{or organ wts.} ~~neutrophils~~ inc'd. and % lymphocytes decreased. No effect on other hematologic, clinical chemistry, ~~urinal~~ ^{urinal} or gross or microscopic findings, except for skin condition, was seen.. Skin changes seen grossly are erythema, edema, superficial escharosis, pustules, and hemorrhaging; those seen microscopically are acanthosis, hyperkeratosis, and occasional dermatitis.

* neutrophils.

524-ENV SECTION C Roundup Hazards to Humans and Domestic Animals

PP 76-1903

The following, by reference, is a complete list of all toxicology completed for the registration of Roundup.

A. Acute Studies

	<u>Test Species</u>	<u>Test Number</u>	<u>EPA Accession Number</u>	<u>Reference Report</u>
Technical Glyphosate (CP 67573)				
1. Acute Oral	Rat	Y-70-90	94176	Section C, Part A
LD ₅₀	Rabbit	BTL-72-109	94176	Section C, Part B
2. Acute Dermal	Rabbit	Y-70-90	94176	Section C, Part B
MLD				
3. Skin Irritation	Rabbit	Y-70-90	94176	Section C, Part B
4. Eye Irritation	Rabbit	Y-70-90	94176	Section C, Part B
5. Subcutaneous	Rat	Y-51-151	94683	Section C, Part R
LD ₅₀				
6. Intraperitoneal	Rat	Y-73-112	94683	Section C, Part T

Roundup Formulation
(MON-2139)

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✓ 1. Acute Oral	Rat	Y-72-160A	94176	Section C, Part D
LD ₅₀	Rat	Y-71-150	94176	Section C, Part C
✓ 2. Acute Dermal	Rabbit	Y-71-150	94176	Section C, Part C
MLD				
✓ 3. Skin Irritation	Rabbit	Y-71-150	94176	Section C, Part C
4. Eye Irritation	✓ Rabbit	Y-71-150	94176	Section C, Part E
	✓ Rabbit	Y-71-155	94176	Section C, Part E
	✓ Rabbit	Y-74-74	50310	
	✓ Rabbit	Y-75-150	94683	Section D, Part W
5. Acute Inhalation	✓ Rat	BTL-74-166A	94683	Section C, Part S
	✓ Rat	IBT-72279	94161	Section C, Part O
✓ 6. Skin Patch test	Human	SH-72-19	94161	Section C, Part P