Office of Management
& Budget Approval No.
99S-74008

Please complete a separate questionnaire for each manufacturing plant site.

Survey of

LOSSES OF CHEMICAL MATERIALS

DURING MANUFACTURE

conducted by

Stanford Research Institute

for

National Science Foundation

1) Chemical Name: 2 Mercaptobenzothiazole

2) Geographical location of manufacturing plant site (check one - OPTIONAL RESPONSE):

New England	☐
Middle Atlantic	☑
South Atlantic	☐
East North Central	☐
East South Central	☐
West North Central	☐
West South Central	☐
Mountain	☐
Pacific	☐

3) Annual plant production level in million pounds per year (check one):

Less than 1	☐
1 - 10	☐
10 - 100	☑
100 - 1,000	☐
1,000 - 10,000	☐

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4) List of 4 most prevalent known impurities in the grades of the chemical produced for sale or captive consumption. Specify concentration of known impurities (e.g., weight %, ppm, gram/liter, etc.).

Name of Known Impurity	Grade of Organic Chemical (e.g., USP, Industrial, etc.)		
	Industrial (grade name or purity)	_____ (grade name or purity)	_____ (grade name or purity)
Moisture	0.5% max (conc.)	_____ (conc.)	_____ (conc.)
_____	_____ (conc.)	_____ (conc.)	_____ (conc.)
_____	_____ (conc.)	_____ (conc.)	_____ (conc.)
_____	_____ (conc.)	_____ (conc.)	_____ (conc.)
Specified purity of product	96% min (conc.)	_____ (conc.)	_____ (conc.)
Ash content of product	0.5% max (conc.)	_____ (conc.)	_____ (conc.)

5) Estimates of losses during manufacture which escape from the plant site after all recovery or pollution control operations (an order of magnitude estimate would be preferred to no estimate):

	Losses of:				
	Chemical during manufacture(1)	Raw materials and major known organic by-products and co-products (specify)			Unidentified organic by-products and wastes(5)
Name →	2-Mercapto-Benzothiazole	Aniline(2)	CS_2(3)	Sulfur(4)	
Annual total losses, lbs/yr.	490,000	_____	_____	365,000	_____
Percent of total losses entering:					
Air	Tr	Tr	Tr	0	_____
Water	26	Tr	Tr	0	_____
Soil	74	Tr	Tr	100%	_____
Deep Well	None	None	None	None	_____

(Note: See Question 6 for use of identification numbers for chemicals.)

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6) Current methods of disposal of waste materials produced during the manufacture of the organic chemical in (check appropriate boxes):

	On-site	Off-site (Contractor, Muncipal)	Identification of Chemicals Disposed*
Deep well	☐	☐	———
Burial in landfill, no container	☑	☐	1-4
Burial in landfill, in containers	☐	☐	———
Degradation in soil compost	☐	☐	———
Incineration	☐	☐	———
Wet air oxidation	☐	☐	———
Chemical oxidation or destruction (ozone, chlorine, permanganate, peroxide)	☐	☐	———
Degradation in water phase (activated sludge, trickling filter)	☑	☐	1
Adsorption on activated carbon	☐	☐	———
Evaporation pond	☐	☐	———
Other (specify: _____)	☐	☐	———

* Use identification numbers in Question 5 to identify specific chemicals disposed in each category.

Please return the completed questionnaire in the enclosed envelope by January 17, 1975, to:

K. E. McCaleb
Stanford Research Institute
Menlo Park, California 94025

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