

Country Status Report: US Lindane Use

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Presentation Outline:

- ✠ Current US Use Patterns
- ✠ Quantities
- ✠ Production
- ✠ Import
- ✠ Export
- ✠ Regulatory History and Status

Current US Use Patterns

Agriculture – US EPA regulated.

- ✦ > 99% of all lindane use is in agriculture.
- ✦ Registered for pre-plant seed treatment for barley, corn, oats, rye, sorghum, and wheat.
- ✦ Most other uses (veterinarian, general insecticide, etc.) cancelled in 1998 & 1999.

Pharmaceutical – US FDA regulated.

- ✦ < 1% of lindane is in pharmaceutical treatment
- ✦ Human lice and scabies treatment.

Current US Use Patterns - Agriculture

- ✦ 99% of agricultural use is for corn and wheat seed treatment.
- ✦ Treatment occurs in seed treating facilities or on individual farms.
- ✦ Often co-formulated with other fungicides (e.g., maneb, captan, thiobendazol) and sometimes with the insecticide diazinon.

Quantities – US

- ✦ Up to 106 Metric tons (233,000 lbs) of lindane active ingredient (ai) are used annually in the US for seed treatment.
- ✦ Average year 64.5 M tons (142,000 lbs) used - 60% of maximum.

Production - US

- ✦ 5 registered technical products (99.5% pure lindane) for making end use products imported into US.
- ✦ 24 registered end use pesticide products registered for US use. Not all products made every year.
- ✦ End use products contain between 6% and 40% of lindane ai.

US Imports

- ✠ All lindane technical product used in the US since late 1970s is imported.
- ✠ Worldwide lindane technical product is only made in 2 countries. In Romania and India.
- ✠ The Romania technical product is only source of technical lindane used in US agricultural uses since Dec 2001.

US Exports

US International Trade Commission Data:

✠ Mexico

- Since 2000, 750 M Tons ? (1,650,000 lbs) to Mexico.

✠ Canada

- No export to Canada since 2001
- Approximately 1 M Ton to Canada since 1997.

✠ South Korea

- 85 M tons (187,000 lbs) over the last two reporting years.

✠ No other country recently receiving significant quantities from the US.

Regulatory History and Status

- ✦ First US registration in 1947 for ear ticks in horses.
- ✦ Lindane registrations over time:
 - ◆ 286 Companies
 - ◆ 949 products
 - ◆ 263 use sites
 - ◆ 200+ pest species

Regulatory History and Status

Registered Use Sites Have Included:

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- Fruit crops
- Vegetable crops
(including seed treatment)
- Landscape ornamentals
- Tobacco
- Greenhouses,
- Forestry
- Christmas tree plantations
- Hardwood log dips

- Livestock dips
- Farm animal premises sprays
- Domestic outdoor and indoor use by homeowners (including dog dips, household sprays and shelf paper)
- Commercial food or feed storage areas and containers
- Wood or wooden structure sites
- Human skin/clothing/bedding (military use only)

Regulatory History and Status

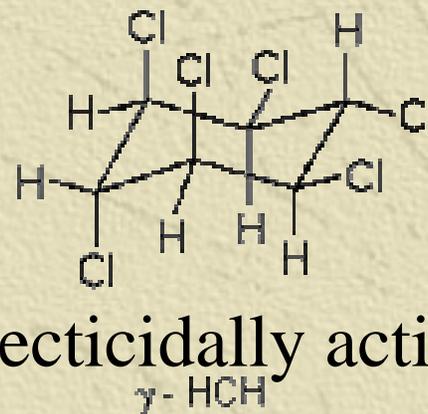
1970s

- ✦ Lindane in Special Review. Special Review resulted in some product cancellations and elimination of aerial applications.
- ✦ Lindane converted from mixed isomers of HCH to gamma isomer in 1977.

Regulatory History and Status

✦ Chemistry aside

- ✦ Lindane is the gamma isomer of hexachlorocyclohexane (HCH).
- ✦ The gamma isomer is the only insecticidally active isomer of hexachlorocyclohexane.
- ✦ Gamma isomer is only 12 – 18% of mixture. Alpha is 65-70%. Beta 7-11%. Delta 7-9%. Others < 4%.
- ✦ Isomers - different chlorine atom ring position.
- ✦ Mixed isomers often called BHC.



Regulatory History and Status

✚ In 1985 Lindane Reregistration Standard issued.

‘Reg’ Standard

- ✚ set out state of the science at that time and
- ✚ formal document of test data needed.

✚ 1998/99 Lindane Reregistration Risk Assessment process begun in earnest. Voluntary cancellations result in removal of all livestock, pet care, turf, general building sprays, foliar crop, timber, lumber, military from the lindane product labels.

Regulatory History and Status

- ✦ 2001/02 13 additional (vegetable) seed treatment uses cancelled. 6 seed treatment uses remain.
- ✦ 2002 Reregistration Eligibility Decision (RED) issued.
- ✦ 2004 (Feb) Data Call-In (DCI) from RED Issued.
The DCI sets out additional studies that are required for lindane to be eligible to be reregistered.

EPA's Lindane RED

- ✦ Cancels all 44 *existing* tolerances (obsolete uses).
- ✦ Reduces some seed treating rates.
- ✦ Reduce worker risk by:
 - ◆ Requiring additional protective equipment or engineering controls.
 - ◆ Limiting types of formulations used on-farm.
- ✦ Requires seed leaching & product chemistry studies.
- ✦ Eligible for reregistration if registrants:
 - ◆ Make the label changes required by the RED document,
 - ◆ Provide the required product test data, including outstanding data, and
 - ◆ EPA is able to establish all required tolerances for residues of lindane in food.