

Controlled Release Formulations for Anionic Herbicides (Yissum)

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Reduce soil and water contamination

Categories	Agriculture, pest control/herbicides, formulations
Development Stage	Ongoing research
Patent Status	US patent 7,030,062, EP patent 1363491, Israel Patent156454
Market Size	Sales of controlled release materials will reach \$787 million in 2012 of which agriculture has by far the largest market share, reaching \$259 million, almost 33% of the total market.

Highlights

- High concentrations of herbicides are used to compensate for loss due to leaching and surface migration
- Slow-release and controlled-release formulations are specifically designed for hydrophobic herbicides – not suitable for anionic herbicides such as sulfonylureas, imidazolinones and triazolopyrimidines

Our Innovation

Herbicides that are negatively charged at pH6 or above are incorporated into positively charged micelles or vesicles. The micelle or vesicle is adsorbed onto negatively-charged clay mineral, such as smectite or sepiolite.

Key Features

- The herbicide is released slowly, reducing leaching to deeper layers and contamination of soil and water.
- The herbicide is delivered close to its target, enhancing efficiency and reducing concentration required
- The new formulation is also suitable for hydrophobic herbicides

Development Milestones

- Seeking cooperation for continued research and commercialization

The Opportunity

- The worldwide agricultural and non-crop (home and garden markets and usage in industrial, governmental and commercial use) herbicide market is valued at more than \$15 billion.
- In terms of consumption, the U.S. agricultural and noncrop herbicide market makes up 35% of the value of the world market and 25% of the volume of the world market.

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