

Elimination of Seed Protection Products Using Ozone

(DÉCO3)



CONTEXT

Treated seeds, containing protection products and additives, must be destroyed when they are no longer usable. Their elimination by incineration in cement plants is the most common solution due to the ban on landfilling since 2005. This method, although effective, represents a high cost of 80 to 100 €/ton and does not allow any valorization of the downgraded seeds, whose annual volume reaches approximately 21,000 tons in France. This context highlights the importance of developing more economical and sustainable alternatives for the management of these wastes.

INVENTION

The invention proposes a method for eliminating residual phytosanitary molecules from contaminated plant seeds by exposing them to ozone after adjusting their humidity between 10% and 21%. The targeted molecules include those with a half-life of at least one month in the soil, and the residual ozone is eliminated after treatment. The treated seeds can be valorized in various technological fields, including biogas production, synthesis production, and the creation of biomaterials

COMPETITIVE AVANTAGES

Seed Valorization: Unlike incineration, ozone treatment allows the reuse of treated seeds in numerous industrial sectors, promoting a circular economy.

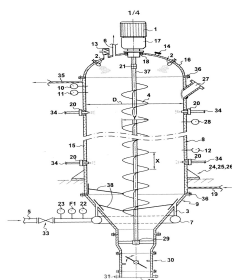
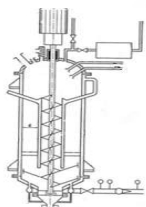
Cost Reduction: The ozone process is potentially less costly than incineration, eliminating high logistics, transport, and destruction costs, while creating added value from treated seeds.

Environmental Respect: Ozone effectively degrades residual phytosanitary molecules without generating toxic by-products, avoiding polluting emissions and contributing to more ecological management of downgraded seeds.

Versatility and Innovation: The process offers a flexible and innovative alternative, compatible with various industrial sectors (energy, green chemistry, sustainable materials), meeting the growing need for sustainable and environmentally friendly solutions.

Simplification of Operations: With simple steps (adjusting humidity, exposure to ozone, elimination of residual ozone), ozone treatment is easier to implement than heavy conventional solutions like incineration.

These advantages position this process as an ecological, economical, and innovative solution for the management of downgraded seeds.



APPLICATIONS

Treatment of downgraded coated seeds

MARKETS

The seed market size is estimated at USD 73.13 billion in 2024 and is expected to reach USD 100.13 billion by 2030, with a growth of 5.38% during the forecast period (2024-2030).



Source : Mordor Intelligence

Source: <https://www.mordorintelligence.com/fr/industry-reports/seeds-industry>

INTELLECTUAL PROPERTY

Patent family EP2785474 (Argentina, Brazil, Belgium, Germany, Spain, France, Hungary, Italy, Poland)

DEVELOPMENT STAGE TRL 8/9



PARTNERSHIP

Seeking one or more industrial partners to exploit the patented invention (license or transfer)

