

Team



Fabian Hütter (left)

Role: Co-Founder and Head of R&D.

Background: Bachelor degree in Industrial design, Focus on circular design.

Professional Experience: Research and Material Development at Biolab Burg Giebichenstein, Head of Product Development at Biolab Burg Giebichenstein.

Assigned part-time staff in R&D, Business Development, Finance, Tax, Legal and Sales.

Network: Ovofit (Egg Processor), Fraunhofer IGB (external scientific development service provider, validates all Protegg data and developments), High Tech Services GmbH (Financial services provider)

Markus Johanning (right)

Role: Co-Founder and Managing Director.

Background: Certified Project Manager (IAPM), Master degree in philosophy and law.

Professional Experience: Policy and Sustainability Consulting, Project Management.

Problems

1.200.000.000 eggs processed per day resulting in 12.000 tons of residue per day

Environmental problem:

Eggshell waste is a highly problematic residue, heavily affecting and harming soil, people and animals. It has been ranked as the 15th major food industry pollution problem by the EPA.

Economic problem:

The necessary hygienisation and subsequent waste management are cost-intensive factors for the egg processing industry. The costs of 80-100€ per tonne significantly influence the calculation in a cent-heavy operation like this.

Ecological problem:

The rapidly growing global demand for raw materials is encountering scarce availability, fluctuating supply chains and consequently rising prices.

Planet Killer construction industry

The construction industry is responsible for 38 percent of global greenhouse gases.

According to the UBA, the construction industry processes more than 70 percent of all raw materials extracted in Germany.

The extraction of these natural resources is associated with major interventions in the environment and contributes strongly to global warming. Innovation is overdue here.

Worldwide increase in the quantity and quality of counterfeits

The trade in counterfeit and pirated goods has reached approx. 3.3% of global trade (EUIPO/OECD).

The estimated value of globally imported counterfeit goods in 2019 was ~USD 509 billion.

Conventional technologies employed for authentication, such as RFID, barcodes, and holograms, have inherent limitations that are being exploited by counterfeiters.

Solutions

Protegg Separation Technology

Environmental solution:
Our single-variety recycling process enables the residual material to be converted into standardised raw materials. The environmental impact can thus be avoided and the raw materials are further processed by the market.

Economic solution:
Protegg takes over the residual materials free of charge for the processor. This eliminates a significant cost factor and also makes the industry much more circular.

Ecological solution:
We offer a sustainable and biogenic limestone alternative for several industries. This is available globally and locally in large quantities.

Biogenic Limestone

We offer a sustainable and biogenic limestone alternative for the construction industry, especially for the cement industry. This is available globally and locally in large quantities.

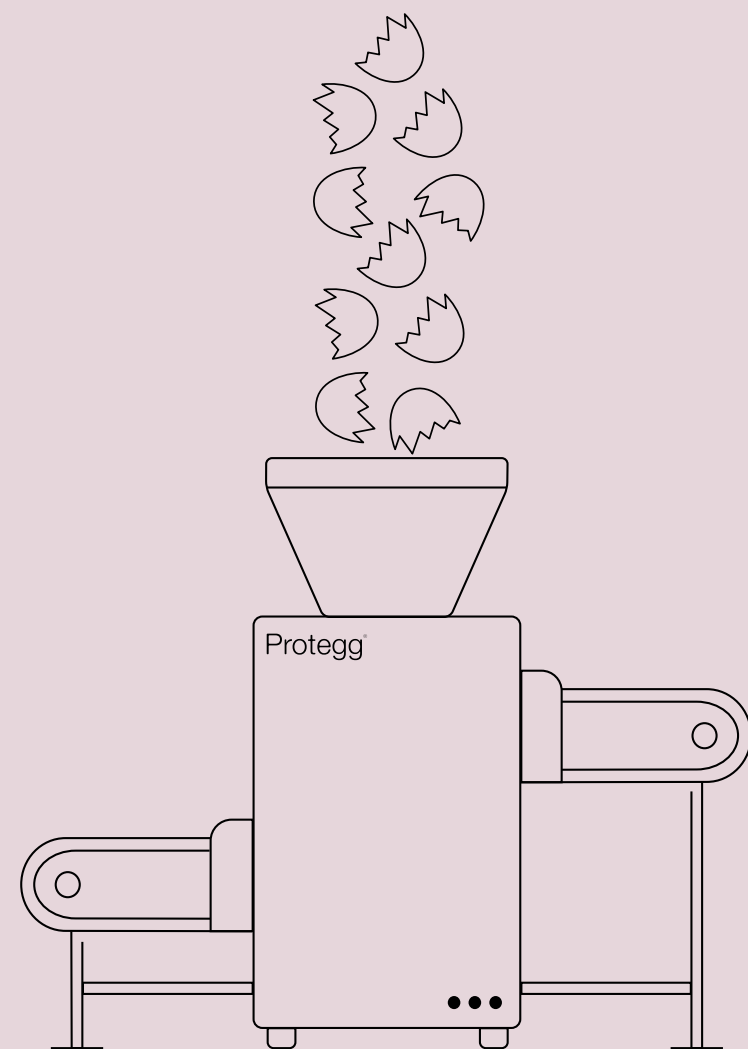
DNA-based Brand and Supply Chain Protection

We offer a novel, DNA-based counterfeit protection for goods and the supply chain. We promise 100% secure verification and can integrate our technology seamlessly and tailor-made into the product to be protected.

Products

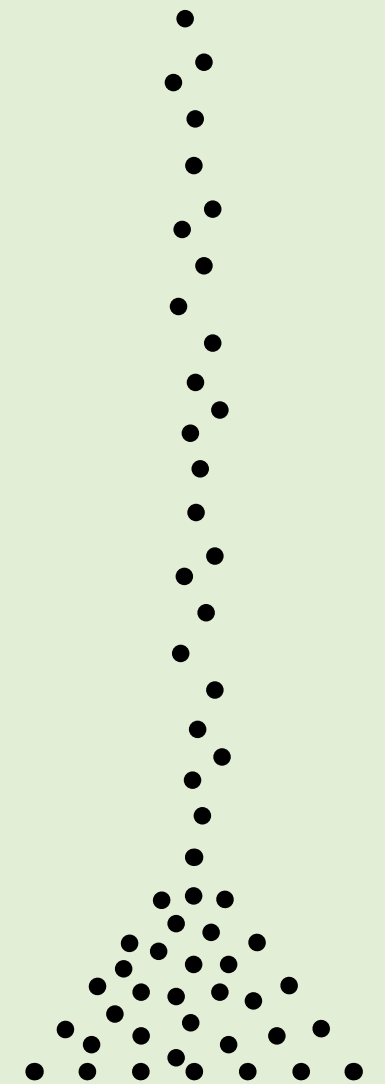
Protegg Separation Technology

- Specialized recycling process that separates the residual material into ESM (Eggshell Membrane) and ESP (Eggshell Powder).
- Separation and hyginisation of the contaminated residual material by type.
- Separation process free of chemicals and with little energy input.
- Our plant can be connected directly to the production process at the processor's site.
- Our system fits perfectly into a sea container.



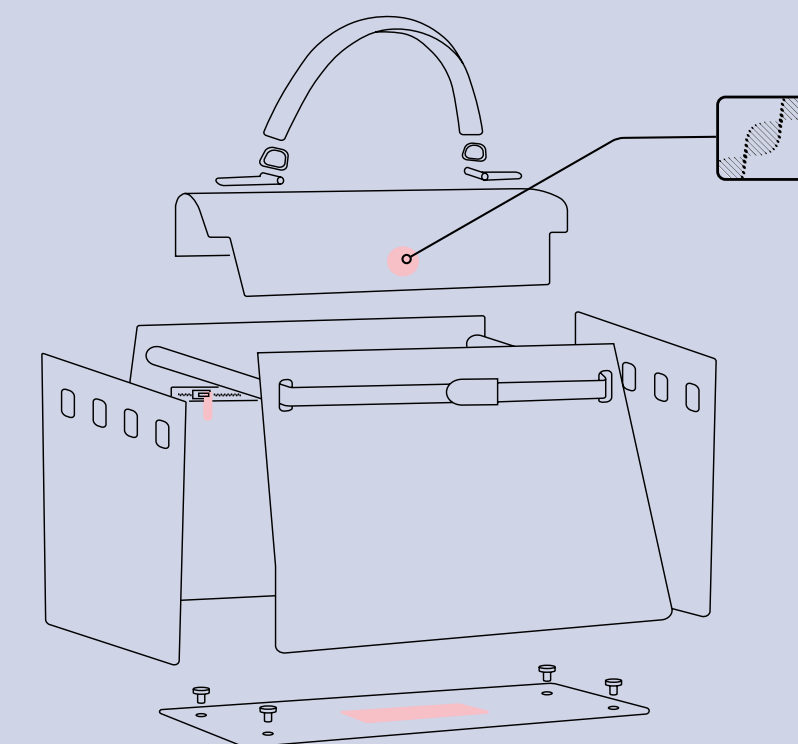
Biogenic Limestone

- Biogenic limestone alternative for different industries.
- Close to CO₂ neutral alternative compared to conventional limestone.
- Homogeneous and higher calcium carbonate content (95%) than conventional limestone.
- Eggshells have been shown to improve concrete properties, among other things.



Protegg DNA Token

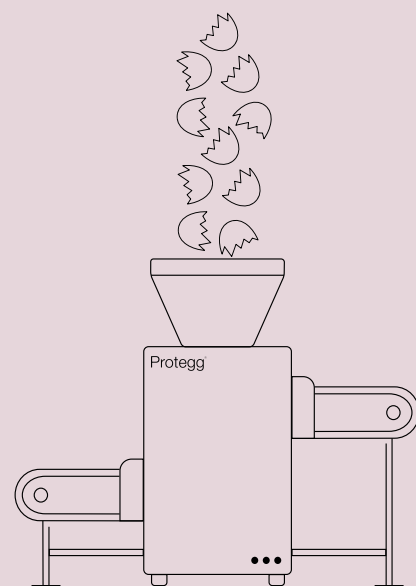
- 100% verification security for the supply chain and brand protection.
- High storage capacity for data/information with a shelf life of over 500 years.
- Invisible and seamless integration into any physical product.
- World's first integration of synth. DNA into a processable material.
- Patent-pending unique ESM bioplastic as carrier material.
- Can be easily integrated into existing manufacturing processes.
- Can be combined with other authentication features depending on customer.



Market

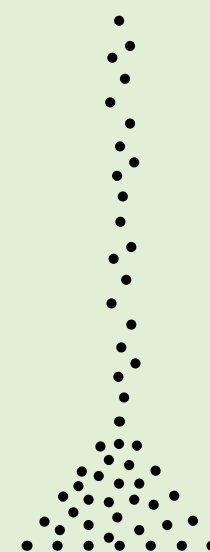
Protegg Separation Technology

- Target group: Egg processing industry.
- 1.2 billion processed eggs per day worldwide, 15.9 million in Germany.
- Cost-free alternative for industry compared to the current cost of €80-100/ton for waste disposal.
- In the egg industry, profit margins are calculated with several decimal places and eliminating costs is even more important here.
- Highly relevant for the constantly growing egg market (1990: 34M tons, 2020: 86M tons, 2030: 96M tons).



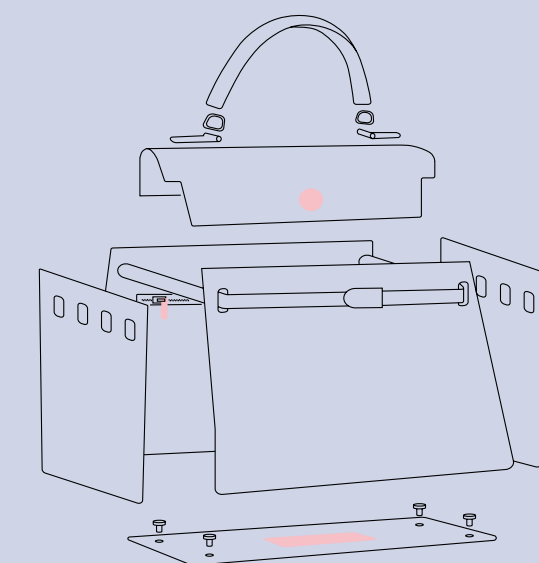
Biogenic Limestone

- Target group: Building materials industry, fillers for plastics, chemical industry, paint industry, paper industry, agriculture.
- Potentially 100 tons of biogenic lime per day in Germany, 10800 tons worldwide.
- Easy way for industries to reduce their CO2 emissions.
- Extremely high limestone demand (to illustrate: market sales in Germany of unburnt lime products amounted to approx. 17.7 million t in 2021).
- Biogenic lime can be sold at competitive prices.



Protegg[®] DNA Token

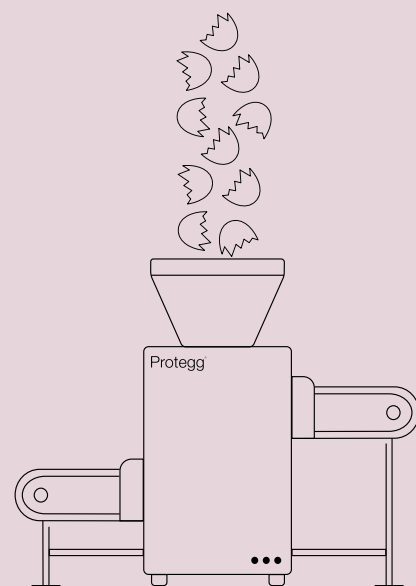
- Target group: Luxury goods manufacturers, supply chain companies, consumer durables manufacturers.
- 10% of the goods in circulation worldwide are counterfeits.
- Classic brand protection applications are increasingly being counterfeited (Holograms, RFID, etc.).
- Brand protection is a constantly growing market. Expected CAGR of 8.3% between 2023 – 2028.
- Previous DNA-based applications are only superficial and subsequently vulnerable, the need for 100% verification and longevity is increasing.



Competition, Business model, Traction

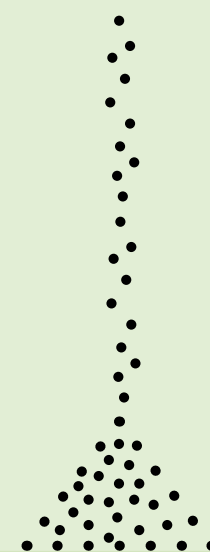
Protegg Separation Technology

- Competition: Conventional waste management companies.
- Advantage: we don't charge money for the residue.
- Business model: Spreading the separation technology over central Europe, setting up an infrastructure to sell the biogenic limestone in big quantities and produce ESM for the DNA Brand Protection. Outside Europe, we are planning a licensing model, initial talks are already underway.
- Traction: There is great interest from the industry, and the construction of the first regular plant at our partners in the egg processing industry is planned for spring 2024. LOI possible at any time.



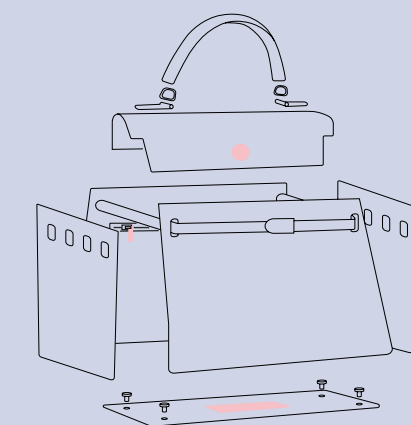
Biogenic Limestone

- Competition: Conventional limestone industry.
- Advantage: biogenic, homogenous, high level of calcium carbonate, close to CO₂ neutral alternative compared to conventional limestone.
- Business model: The first separation plant processes 5 tons per week, in the next step we would like to produce 100 tons per week with further separation plants in Germany. Depending on the customer we receive 100-300€ per ton. The larger the amount of residual material, the more favorable the price per ton.
- Traction: We have already held many initial talks and interest from the cement, building materials and paper industries is very high. LOI possible at any time.



Protegg[®] DNA Token

- Competition: Authentication and Brand Protection Market by Technology (Overt, Covert, Digital, Forensic), Offering (Security Labels, Holograms, RFID/NFC, Barcodes, QR Codes), Authentication Mode (Smartphone, Blockchain).
- Advantage: longevity (500+ years), 100% verification guaranteed, any information can be stored and protected, invisible and seamless integration.
- Business model: First series in 2024 with up to 1000 tags, first large series in 2025 with 10,000+ tags. Depending on complexity and customer requirements, the price per tag is in the single-digit euro range.
- Traction: Initial interest and encouragement from the watch industry. We hold initial talks with players in the luxury industry and with major exporters.



Say hi and let's change the world together

Fabian Hütter

Co-Founder & Head of R&D

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