

CONPOWER
Energie bewusst machen

Lighting solution

Potato storage and processing

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Potatoes | To prevent formation of Solanine

Potatoes must be fresh, crunchy and sterile for the food industry and retail trade. Conventional potato storage must be cool, quiet, with proper humidity and lighting. Disturbances such as temperature fluctuations and daylight lead to germination and greening of the potato tubers.

The problem

Studies and many years of experience in potato logistics show that the use of white light reduces the quality of the potatoes. The light spectrum known as „white light“ consists of light waves from a wide range. The spectral waves can be measured in a range between ultraviolet and infrared. The visible „white light“ consists of different light colours. Individual spectra are particularly important for plant growth. Especially the red and blue spectral components of the light are photoactive and promote growth. This light gives the potato the initial spark to green.

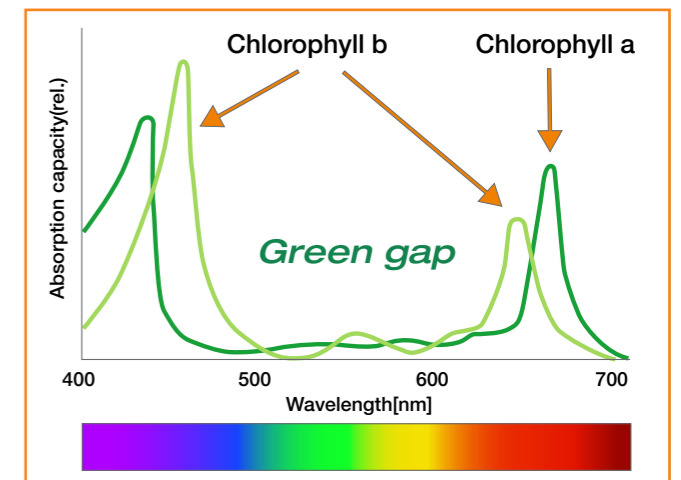


Solanine and chlorophyll are formed in the potato during the germination process. Solanine serves the potato as a toxin to ward off pests. Chlorophyll makes the potato green. The potatoes become not only unsightly, but also inedible, because the alkaloid solanine is also poisonous to humans.

The solution

Modern lighting technology in the form of light-emitting diodes (LED) offers new possibilities for all processes in the potato industry. Diodes can be coated to filter the emitted wavelengths, which makes an exact restriction of the spectrum possible.

The CONPOWER development team manufactures special luminaires for the potato industry under strict selection of diodes operating in the 520-540 nm spectrum.



The light perceived by the human eye as green effectively prevents green formation and thus provides a decisive factor for the value-preserving storage and further processing of potatoes. Solanine and chlorophyll formation is effectively suppressed.

The Expertise

Independent practical test of the luminaires by Kartoffel Kuhn GmbH confirms the effect. „At the beginning of this year you provided us with your „green LED light“ as a sample. We were interested to know if your „green light“ actually prevents the formation of chlorophyll and greening of our potatoes, even after prolonged intensive irradiation.

Despite the facts and explanations presented by you, we wanted to see the effect of your „green LED light“ on our potatoes in a self-test in our house. For this test, we brought a pallet of potatoes into our cold store and permanently irradiated them with your „green LED spotlight“ for approx. 8 days, 24 hours. After this time we examined the potatoes and found out that no green formation, i.e. chlorophyll or solanine formation, could be found on the test potatoes. The result was more than satisfactory. If the potatoes had been exposed to normal white light under the same conditions, our many years of experience had shown that they would have turned green after just two to three days and would have been unsuitable for either consumption or trade. Especially in processing and long-term storage, your „green light“ is a very interesting variant for us.“
[Stefan Michels | Kartoffel Kuhn GmbH]





The luminaires

CONPOWER equips luminaires that have proven themselves thousands of times in industry with electronics specially developed for the potato industry. The luminaires have robust and durable housings that can withstand adverse and harsh environmental conditions. CONPOWER relies on luminaire models that enable both symmetrical and asymmetrical illumination. High variability in terms of power and beam characteristics offers high flexibility for any environment.



Energy efficiency

With an efficiency of up to 145 lm/W, CONPOWER special luminaires for the potato industry are just as efficient as conventional LED luminaires for industrial applications. The coatings and tubes used in the past to colour the light reduced the luminous flux of the lamps and thus their efficiency. This means that up to 90% savings can be achieved by converting to LED technology.

■ Advantages Potato luminaires

- ⊕ Prevents the formation of solanine and chlorophyll
- ⊕ Energy savings of up to 90%
- ⊕ Reduction of maintenance costs

■ Technical advantages of Helios & Korona

- ⊕ Robust & durable die-cast aluminium housing
- ⊕ Up to 145 lm/W in light spectrum 520-540 nm
- ⊕ Protection class IP65 (jet water protection)
- ⊕ Impact resistance IK08
- ⊕ Easy to clean
- ⊕ Can be networked with DALI





Your partner when it comes to light

CONPOWER has established itself nationwide and in German-speaking countries as a solution and service provider for indoor and outdoor lighting systems. The unique concept of receiving not only luminaires from the manufacturer, but also a comprehensive service package including installation and maintenance, makes our products and services particularly attractive. You benefit from fair prices and simple and uncomplicated handling from a single source.

- ⊕ Planning and projecting
- ⊕ Light simulation
- ⊕ Assembly and retrofitting of lighting systems
- ⊕ Intelligent lighting control
- ⊕ Maintenance and service management
- ⊕ Standard-compliant performance of the legally prescribed tests
- ⊕ Preparation of legally compliant documentation



PROJECT PLANNING

- State analysis
- Amortisation
- Lighting Simulation
- Electrical planning

PRODUCTS

- Luminaires
- Control technology
- Emergency lighting
- Energy monitoring
- Control cabinet construction

INSTALLATION

- Dismounting
- Disposal
- Site management and supervision
- Assembly
- Commissioning

OPERATION

- Emergency service
- Maintenance
- Remote maintenance
- Service

FINANCING

- Leasing
- Lease-purchase
- Contracting