
cryonom®
CRYONOM
AFL-CLEANING

Basic Information

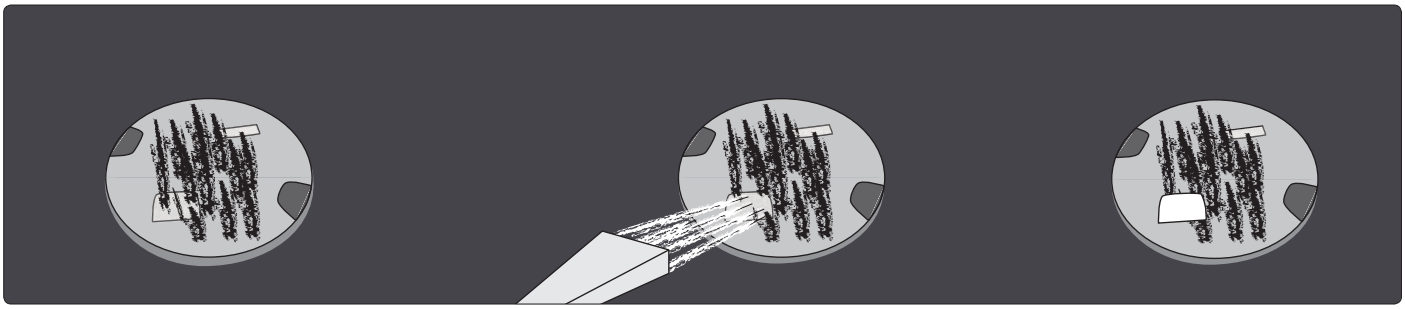
Operational influences such as contamination with rubber abrasion are one of the main reasons for reduced light intensity of optical taxiway and runway aids.

This leads to a shorter material life and, in the worst case, your lighting system could no longer fulfill the requirements according to ICAO.

Cryonom is a special system to clean optical taxiways and runways at airports. DeWiTec has developed and tested this system based on dry ice.

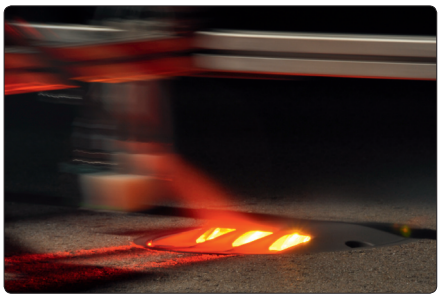
For this application, DeWiTec has customized parameters that guarantee optimal cleaning results.

Before cleaning | **During cleaning** | **After cleaning**



Reduced light intensity of the lighting device due to rubber abrasion

Residue-free removal of dirt



Maximum light intensity with a cleaned prism

Complete System

Order Cryonom separately or cryonom in combination with dalmas® as a service.

Service

More information on the two options is given on the following pages.
We would be glad to inform you personally!

Read the following six questions and ask yourself if you could improve the efficiency of your airport with Cryonom!

Maintenance Effectiveness

Does your lighting system still conform to ICAO, if the prisms are dirty?

Cleaning with Cryonom will lead to a clean surface and to a maximum light yield of the lighting device - guaranteed. DeWiTec can check your taxiway and runway aids with the mobile analysis system DALMAS®.
We would be glad to give you detailed information. Contact us!

Don‘t have much time on your runways?

Cryonom cleans up to ten times more quickly than common cleaning methods. Are there special occasions, on which the runways have to be quickly ready and without delay?

A lot of flight movements and a continuous usage of the runways make it necessary to effectively use the time available. A quick clearance of the runway cannot be guaranteed, if groups of cleaning staff members are standing on the runway.

Do you place value on a gentle cleaning?

Cryonom does not damage prisms or seals. Regular cleaning with Cryonom even increase the life of the prisms. Cryonom is also eco-friendly: It doesn‘t leave any residues from cleaning agents.

The most commonly used agents do not solve the problem, but oftenly increase them. Sensitive surfaces (prisms) as well as seals are not protected and electronic components or electrical parts within the lighting devices can be flooded and destroyed. And in case of frost, a water-based cleaning is impossible.

Have you ever cleaned a complete CAT II / III lighting system in only one night?

With Cryonom you will be able to! This keeps your head clear - and your staff free - for more important things. Cleaning covers all inset lights of the runway centerline, touchdown zone, threshold, runway end, stopbars, red side row and approach. You rather prefer to clean by day? No problem. Cryonom allows you to clean twenty-four-seven.

It‘s time-consuming to clean a large lighting system by hand. If nothing else, this can cause quite a headache, when planning assignments. The staff will be stressed by night shifts over a long period of time.

Maintenance Effectiveness

Do you only have a limited number of staff members available?

Only one person needs to operate Cryonom during the cleaning procedure.
The cleaning procedure is electronically controlled. Two persons are only necessary for assembly and disassembly.

The work and time-intensive cleaning procedure depends on the availability of the staff, which often is needed for more important projects.

Would you like to protect yourself against detergents that are dangerous to your health?

The staff will be sitting safe in the driver‘s cabin during the cleaning process. Cryonom will clean fully automatically and on its own. That‘s why it is possible to clean at night and at low temperatures without harming someones health or causing contamination.

Common cleaning procedures often require ergonomically unfavorable working positions for the employees, in combination with exposure to dangerous chemicals .

Have you answered more than one question with „yes“?
Then read more about the Cryonom cleaning system
on the following pages!

Functional Principle

The high difference in temperature between the CO2 pellets (-78 °C) and the contamination leads to a cold shock. This partially destroys the connection between the support material (prism) and contamination.

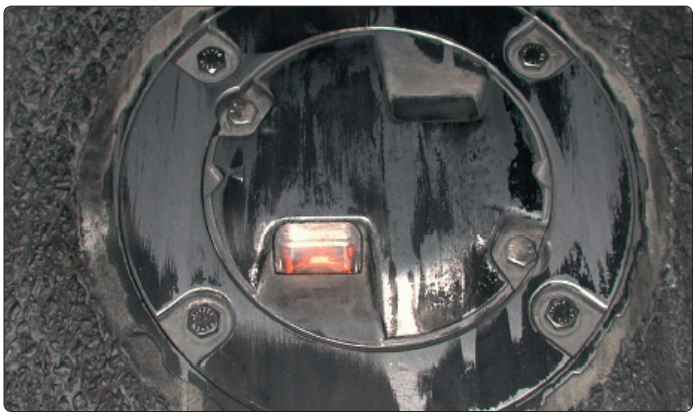
The surface of the dirt and rubber layer cracks and opens.

The kinetic collision energy of the dry ice particles intensifies the effect and the CO2 molecules penetrate into these voids, during which they increase their volume sevenhundredfold (due to transition from the solid state to the gaseous phase). During this procedure, the contamination is taken to small pieces, which are then transported by the airflow away from the contaminated surface.

The combination of thermal shock and kinetic energy results in an efficient and quick cleaning of the prisms during the cleaning of optical taxiing and landing aids.

An insetlight...

...before cleaning by Cryonom



...after cleaning by Cryonom

Hint: View our information video to experience the Cryonom cleaning procedure „live“!

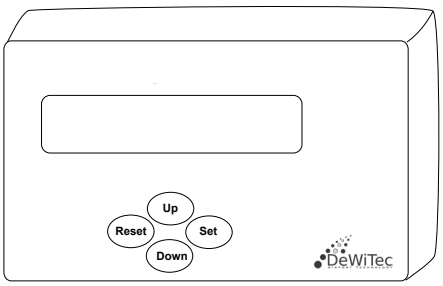
What is „dry ice“?

Dry ice is an extremely hard CO2 granulate in the size and form of a rice grain. It is produced by injecting liquid CO2 with 17 - 20 bar pressure into a cylinder, where it expands at normal atmospheric pressure turning into fine CO2 snow.

The snow is then compressed and extruded at pressures of up to 180 bar through a matrix, thus creating dry ice pellets. The temperature of the dry ice pellets is -78 °C (-106 °F).

The dry ice pellets have a special feature: With energy absorption (for example heat or impact) the ice converts from solid to gas, bypassing the liquid phase.

System Components



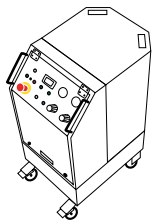
Front-end module

Cryonom is operated by the user in a clear structured area via control and operator module. This is done with four push-buttons.

Cleaning rack including jet nozzle

The cleaning rack is customized to your vehicle.

It is on the left of the driver‘s cabin. Among others, a jet nozzle is attached to it.



Compressor & dry ice machine

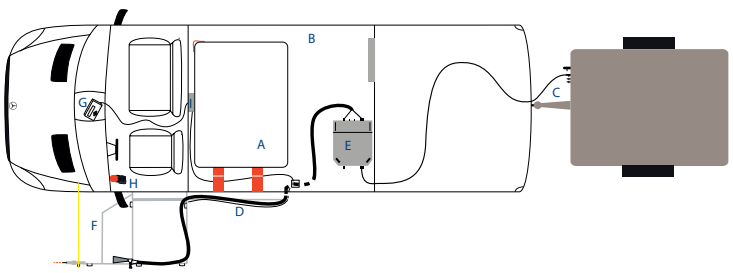
A special compressor supplies the system with compressed air. DeWiTec will explain the technical details. The dry ice machine provides the mixture of compressed air and dry ice from the machine.

Transport box

The dry ice is transported in a special thermically insulated transport box.

Integration of the components

All components are connected with each other and adapted to the cleaning vehicle. Our experience and know-how offer the best solution to your application! The equipment for your vehicle is part of our offer.



Complete System

As soon as you choose a complete system, we offer you the following:

Training

Our employees will supply all important Cryonom cleaning information during a one-hour training. By request, we can perform this training on your premises or at another airport. This is how you can learn more about the system functionality under real conditions and can operate it by yourself.

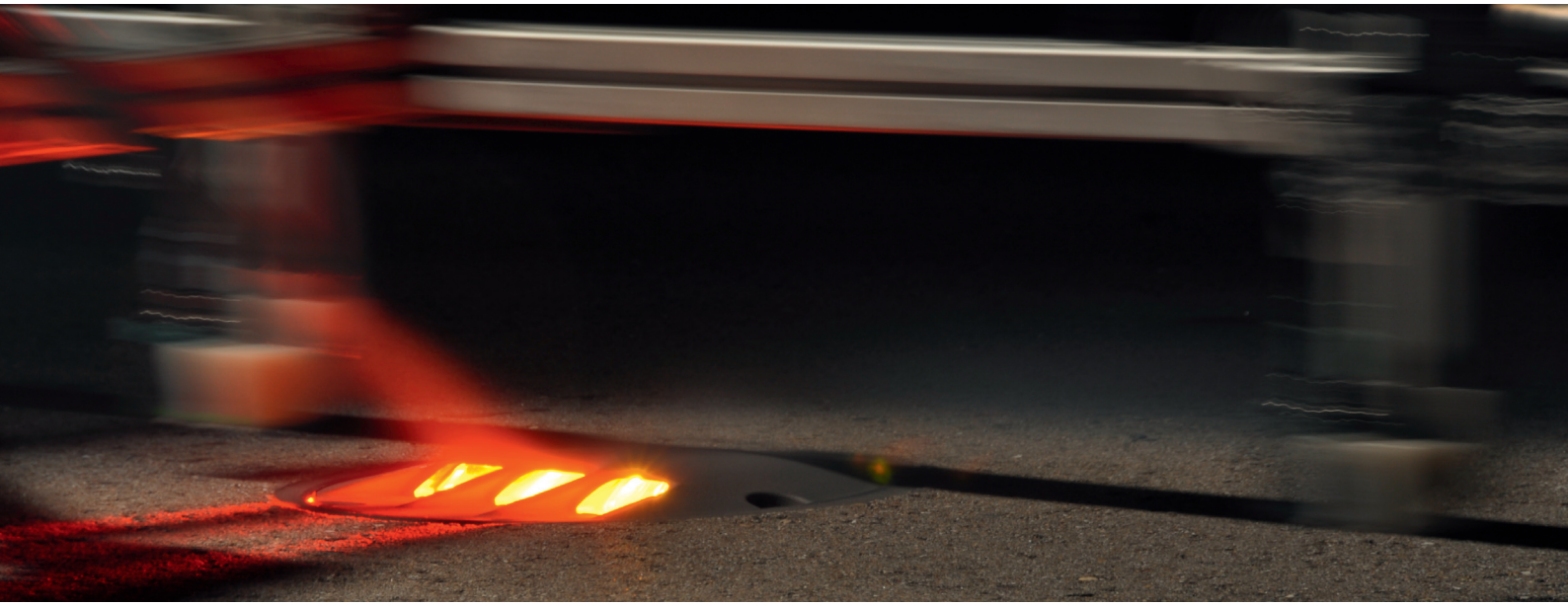
Selection & adaptation of the cleaning vehicle

On request, DeWiTec will help you choose a suitable cleaning vehicle and will adapt it to Cryonom for you. This could be a new vehicle or a vehicle from your car pool. Of course, we will consider your personal wishes and demands, so that the vehicle can e.g. also be implemented in other areas.

User manual & documentation

You will receive a detailed documentation on the functions of the Cryonom cleaning system. This is how, even after a long time, set up and downgrade will always stay easy and without problems. If you should still have questions, we would be glad to help you personally.


SPRINTE



Cryonom AFL-Cleaning

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QR-Code Reader available for most smartphones

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