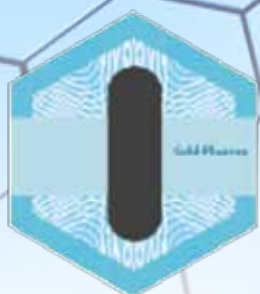




coldpharma
INTERNATIONAL SA

Cold Chain monitoring system

Monitoring system to ensure the quality
and effectiveness of products within the cold-chain



Cold-Pharma System

Guaranteeing the quality of your cold chain



An innovative technology in the cold chain industry

State of the art technology, unique and reliable

Smart Labels using Nano technology that allow the user to see if a product remained within its ideal temperature range or suffered heat and temperature fluctuation and for how long they were exposed to heat over the threshold temperature.

Allows to see maximum temperature a product sustained.

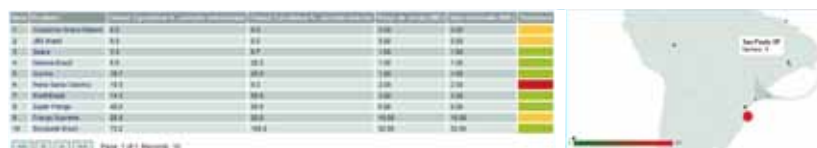
Allows to see the thermal damage a product sustained and its effects on its shelf life, also taking into consideration the bacterial count.

Our technology received the T35 award from M.I.T. in 2011 and was invented by our Engineer Marco Mandelli in Italy



The technology allows You to monitor the cold chain with the following advantages:

- Verify if the product remained within the ideal temperature
- Verify for how long the product remained over the threshold temperature
- Verify the logistics quality with the possibility to analyse where the weak link is, through trends showing improvements or deteriorations in transportation, warehousing and distribution of the products.
- Analyse in real time the financial impact due to loss (degradation) of product related to cold chain interruptions.
- Real time data for analysis of product temperature history in production, transportation and storage.
- Through a QR code the consumer may have access to see last time products were scanned and verified and that no temperature interruptions occurred to the product.
- Analytical tables for producers, transporters, product, distribution centers showing trends and value of losses due to cold chain interruption.
- Geo-chart: locate geographically through a map where there are more serious problems in the logistics cold chain system.
- Technology to ensure product quality before reaching consumers and that may increase sales due to a guarantee the consumer has that product has not suffered from cold chain interruptions.
- Customer loyalty through quality guaranteed smart label applied to the product.
- Decrease loss of product as if a refrigeration unit breaks down you can see what products were affected, and no need to lose the entire shipment as our technology shows product exposition to heat versus ambient temperature.
- Easy to use technology that consists of a label with nano magnetic technology and software for data analysis.
- Eliminate problems of who to blame in case of product loss as system will show responsibilities and where interruptions to the cold chain occurred.



Smart label technology

4 devices needed to monitor the coldchain

LABELS: Each product has an activated label.

SCANNER: A scanner is required to analyse the data from the label to then communicate and transmit the data to a smartphone/tablet using android or a palm top via bluetooth

SMARTPHONE/TABLET USING ANDROID OR PALM TOP: Each scan shall be related to a check point to then transmit data of the product via bluetooth to the android device which in turn shall send the data and GTIN of the product to the system for analysis via wifi.

SOFTWARE ONLINE: Will receive data wirelessly for each product with the applied smart label.

The software shall then generate reports with graphs and create consolidated reports to ensure a proper data analysis by product, producer, transporter, distribution center,



Smart label technology

Demagnetization concept

Milligauss: Each label once activated shall have a value calculated in milligauss, which is a measurement unit referred to the magnetic induction, which is related to gain of thermal energy and to the time of exposure to heat, resulting in a demagnetization of the label

Threshold temperature: The threshold temperature shall be set product by product, with the necessary parameters to monitor the coldchain of the said products

Verification for time of exposure to heat: In each stage of the coldchain it will be possible to verify the temperature excursions of a product and see the amount of time the product remained over the threshold temperature and maximum temperature at the core of the product. You will also have charts and tables showing the thermal damage a product has suffered and showing it affects on the shelf life.

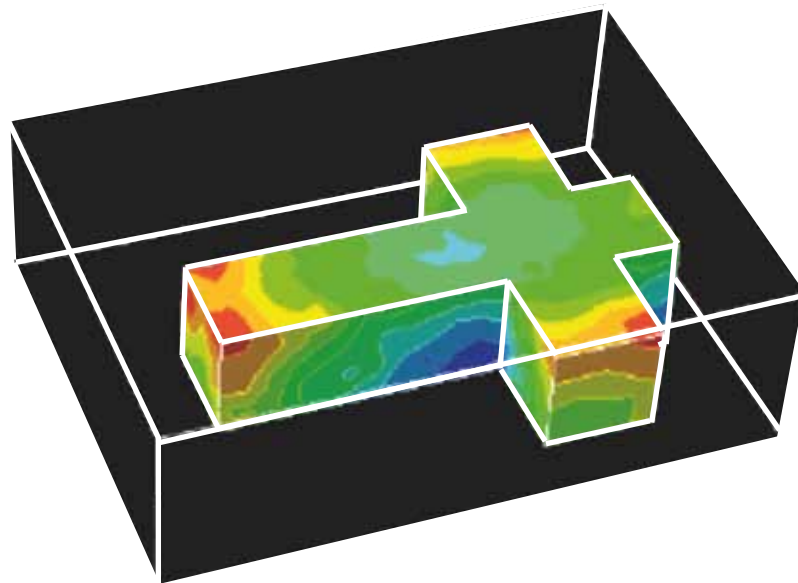
Cold chain interruption indicators (Green, Yellow and Red):
This allows an easy visualization of the excursions of temperature the product encountered by putting coloured flags next to each product in the database, depending on the quality of the cold chain, within the database green indicates product is in perfect condition, yellow indicates product suffered some exposition to heat but is still at a tollerable level and red that the product was over exposed to heat and must be carefully examined.

Smart label technology

A more efficient control

The difference using our technology versus a datalogger is that our technology will be able to detect if a product actually gained heat and not the ambient.

If we take a pallet of boxes the boxes on top of the pallet will be the ones most exposed to heat while the ones in the middle will have an insulation from the surrounding boxes which will protect them from thermal absorption, this will be identified by our technology.



Higher exposition to heat ●

● Lower exposition to heat

Main Features

- ✓ Temperature control
- ✓ Time exposition to heat
- ✓ Shelf life (also with bacterial count)
- ✓ Traceability through GTIN Central registry of products
- ✓ Silabel – through datamatrix or QR code illustrates vast range of information on product
- ✓ Automated report system
- ✓ Recall system
- ✓ Online order system
- ✓ Cold chain diagnostics through cold pharma technologies
- ✓ Integration of EAN13/QRcode serialization of products allowing to track each single item
- ✓ Geo reference
- ✓ Customizable labels with your own corporate logo



Departmental advantages

- ✓ Commercial - know if your client is satisfied or annoyed prior to a meeting, in order to be able to offer a solution prior to receiving a complaint
- ✓ Marketing - show the consumer that he may verify through a smartphone when the quality of the product was last verified and secure customer loyalty
- ✓ Quality control & logistics - ensure all products are delivered in the ideal temperature, guaranteeing quality of the product throughout its cold chain logistics
- ✓ Protect corporate image on product quality basis

Automated alert system

- Automatically sends out emails
- Integrated with Facebook and Twitter
- Automatically sends out notifications (app)



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