

# CEAM SENSOR VIRTUAL MASS HYSTERESIS

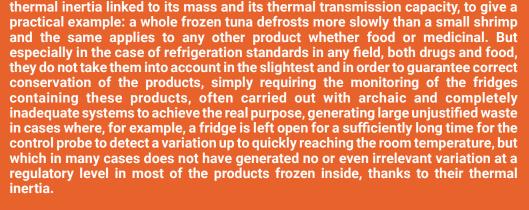
## Patent No. 202024000000378-2024 *IECHNOLOGY* PATENT

Control Equipment

**System & Smart Sensor Division** 

#### **OBSERVATION**





Although it is well known that any heated or cooled product has its own specific

But on a formal level, not being able to demonstrate this condition, these products must all be thrown away, with a very pleasant and useless waste. Further confirmation of what has been described occurs by observing that in some cases to "cheat" the monitoring system, we often find very imaginative and dangerous do-ityourself solutions, such as probes inserted into jars filled with antifreeze liquids, which simply generate a out of control delay of the measurement, and if on the one hand they reduce the problem, the actual result on the actual conservation of the products is unknown and therefore very dangerous.

#### **The IDEA**

When in light of what has been described above, the idea was to seriously address the issue with a method that was not out of control and dangerous like the jar no, but which was a scientific solution that could really reduce unnecessary waste but sense to generate risks for the correct conservation of products.

#### **OUR SOLUTION**

Thus was born the C-SVMH Cws Sensor Virtual Mass Hysteresis technology (Patent No. 202024000000378 - 2024).

The idea is to exploit the inertial thermal capacity of the products by detecting it with a specific scientifically validated procedure and using special sensors capable of measuring the real heating or defrosting curve, generating an exactly corresponding virtual profile, the one that is fashionable today call Gemello Digitale (Digital Twin), which will then be used by the CEAM CWS platform for correct monitoring also for regulatory purposes.

In practice, the platform, faced with a single real control sensor traditionally installed in the air inside the compartment of a fridge, will be able to generate other thermal profiles depending on the various types of products contained therein, virtually differentiating the thermal trend and with the possibility of organizing them into different classes of products with homogeneous behaviour, at least in the event of problems with the fridge, depending on the defrosting time, the products belonging to the classes whose virtual profile has not undergone changes such as to be eliminated can be saved from the required regulatory tolerance.

While only products that have actually undergone such a change as to have gone out of tolerance and therefore become potentially dangerous can be easily identified and therefore disposed of, thus drastically reducing waste and risks.



#### EXAMPLE OF SENSOR WITH BALLAST FOR RANDOM THERMAL DELAY





#### **STATE OF ART**

In the images on the left, the first two photos above show two example probes equipped with dangerous random thermal ballasts.

The first one at the top is equipped with a plastic jar filled with antifreeze liquids, in the second example a very thick metal cylinder has been applied under the probe, making the probe practically insensitive to thermal variations.

In both, although the attempt to mask the real thermal trend is ingenious in its simplicity, in these cases, as already well explained, the level of delay in the measurements is completely unknown and random, therefore the repercussions on the thermal quality of conservation are equally unknown. of the products, introducing enormous risks to the health of those who will have to take those products, whether it be drugs but also food products, especially those at high risk such as all easily perishable ones, or in the case of already frozen food products which could undergo thawing and refreezing without anyone noticing anything, becoming in many cases even poisonous.

Today, thanks to the C-SVMH solution patented by CEAM, there is no longer any need to take risks, but it is finally possible to carry out a scientifically safe check in





#### MANAGEMENT SYSTEM CERTIFICATE

initial scrittlorition data 62 July 2009

Certificatic no : 55954-2009-AC-ITA-SINCERT

1 October 2021 - 02 July 2034 piny data of least scrittle October 2021

This is to certify that the management system of CEAM CONTROL EQUIPMENT S.r.I - Sede Legale ed Operativa

Via Val d'Onne, 291 - 50053 Empoli (FI) - Italy

has been found to conform to the Quality Management System standard. ISO 9001:2015

#### This certificate is valid for the following scope:

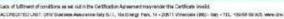
Design, production, installation and assistance of thermocouples, furnaces assembly of components for control equipments and system process regulations. Calibration service for temperature, pressure, humidity, electric resistance, voltage, current transducers and relatives industrial instruments and combustion analyzer (IAF: 19)











### EAM<sup>©</sup> Control Equipment Member of Ceam Group

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