

# ULTRAGUARD™

HIGHLY REFLECTIVE COATING  
FOR ALL TYPES OF VEHICLE  
RESTRAINT SYSTEMS



**SOLOSAR**

EQUIPEMENTS DE VOIRIE • SÉCURITÉ • AMÉNAGEMENT

*Pour nous, votre projet est unique.*



**HEINTZMANN** | Group



# ULTRAGUARD™



NIGHT-TIME **VISIBILITY**  
AND TOTAL ANTICIPATION...  
WHATEVER THE WEATHER CONDITIONS...

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# ULTRAGUARD™

ULTRAGUARD™ has been developed to complement the other road safety equipment to give the driver TOTAL PERCEPTION AND UNDERSTANDING of the road profile

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2008

POTTERS INDUSTRIES develops the ULTRAGUARD™ concept and tests it in the United States and Brazil

2014

First issue of the world patent

2021

POTTERS and SOLOSAR sign exclusive cooperation agreement - EMEA + China

2021

Training of the ULTRAGUARD™ application team at SOLOSAR and initial site trials.

2022

Start of the search for exclusive partners in targeted regions such as Europe, the Middle East and Africa.

2023

Several kilometres applied worldwide and the innovation continues !

IMPROVING THE SAFETY OF ROAD USERS  
IN ALL WEATHERS AND CIRCUMSTANCES...  
IN THE ENTIRE WORLD!



# A ROAD SAFETY SOLUTION

## 44%

**of fatal accidents**

44% of fatal accidents occur between 10 pm and 5 am, even though this period accounts for only 10% of total traffic.

## 1,3 MILLIONS

**of deaths**

Every year, there are around 1.3 million deaths and 20 to 50 million injuries on the road worldwide\*.

## 3%

**of GDP**

Road accidents cost an average of almost 3% of a country's gross domestic product\*.

\* Source WHO

For every dangerous situation on the road only one solution :  
**ULTRAGUARD™**

Sand storm

Fog / Rain

Snow / Ice

Darkness



# A REAL ROAD SAFETY INNOVATION



## WHAT IS ULTRAGUARD™ ?

ULTRAGUARD™ is the combination of an aqueous paint that does not run and glass microbeads with **high retroreflective power** (refractive index 1.9 to EN 1436) for vertical application on all vehicle restraint systems and all types of profiles (steel crash barriers, Concrete or New Jersey barriers, modular lane dividers, etc.).

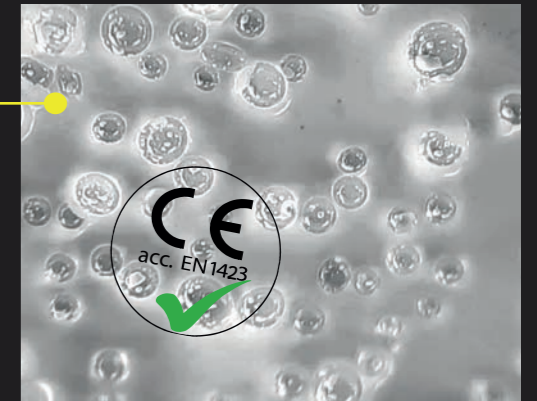
ULTRAGUARD™ makes the road highly visible without dazzle and allows **better anticipation of road users especially at night and/or in bad weather**. ULTRAGUARD™ reduces the driver's reaction time and facilitates any emergency action related to unexpected events on the road.

A high-performance system thanks to a **WINNING TRILOGY**

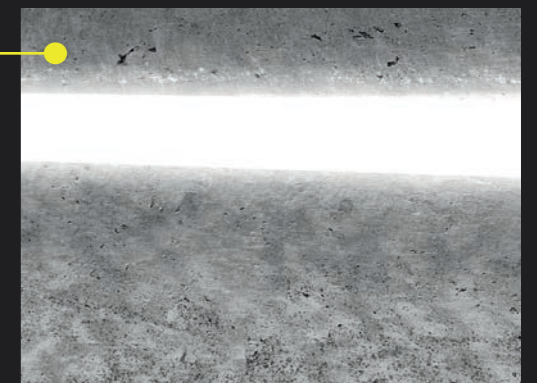
An innovate application cart



High refractive index glass microspheres



High-performance water-based paint



**ULTRAGUARD™**  
Application on any type of surface





# ULTRAGUARD™

TRUE  
**INNOVATION**  
FOR ROAD SAFETY

## TECHNICAL INFORMATIONS

### 01 Sourcing

SOLOSAR® permanently stocks ULTRAGUARD™ paint and microspheres at its site in France.

### 04 Retroreflection

The average expected retroreflection value is close to 1000 mcd/lx/m<sup>2</sup>. ULTRAGUARD™ offers day and night contrast in all circumstances.

### 02 Possible configurations

Retroreflective lines can be short, long, of different widths or discontinuous.

### 05 Paint and microspheres

On average, the consumption of paint and ULTRAGUARD™ microbeads is 500 g / m<sup>2</sup> each for a 10 cm wide strip.

### 03 Available colours

Available in white or yellow. Other colours according to colour chart RAL: on request.

### 06 Weather conditions

ULTRAGUARD™ can be applied from + 5 °C and with humidity levels below 80%.



# ULTRAGUARD™

is a high visibility solution that provides better definition of road geometry, **day and night** and particularly in difficult weather conditions.

## BEFORE



# -25%

A study\* of accidents occurring at night before and after the installation of Ultraguard™, demonstrated an annual **reduction in the accident rate of over 25%.**

\*Study carried out in the State of Missouri (USA) by C. Arruebarrena over an 18-month period between October 2014 and April 2016.

The best alternative for  
guiding road users

## AFTER





# EXCLUSIVE ULTRAGUARD™

## BENEFITS

### Increases reaction time

ULTRAGUARD™ allows the driver to see the road profile ahead of time, thereby increasing his or her anticipation time in relation to a possible hazard.



### High visibility and guidance efficiency

ULTRAGUARD™ provides high visibility of curves, central islands, construction site areas, tunnels, unlit roads and especially in adverse weather conditions.



### Durability

ULTRAGUARD™ is a coating guaranteed for a minimum of 5 years as it is protected from the wear and abrasion experienced by road markings. The microbeads are self-washing and ensure the durability of the application's performance.



### Operating savings

ULTRAGUARD™ makes guardrails highly visible to road users and in all weathers. The reduction in accidents will generate less frequent replacement of vehicle restraint systems, more limited interventions and de facto controlled road maintenance costs.



### An alternative to artificial lighting

ULTRAGUARD™ is the best alternative to artificial lighting (candelabras, etc.) with its very harmful effects on the environment and health (no upward reflection of light, no disruption of the human sleep cycle or the reproduction or foraging cycle of wildlife).





# CONVINCING RESULTS

# IN TERMS OF RETROREFLECTION



It was on the Belgian SOFICO road network that our team was given the experimental task of laying ULTRAGUARD™ surfacing on metal and concrete guardrails.

Our teams applied 470 km of ULTRAGUARD™ at the Mons and Tournai sites. Our customer was able to measure a retroreflection of 1016 mcd/lx/m<sup>2</sup> on a concrete barrier in dry weather and 881 mcd/lx/m<sup>2</sup> in wet weather on the same concrete barrier.

RL : 1016 (mcd/m<sup>2</sup>) / lx  
Avg : 162 #50/18 Moving

TEST ON CONCRETE  
BARRIER IN DRY WEATHER

RL : 881 (mcd/m<sup>2</sup>) / lx  
Avg : 464 #58/18 Moving

TEST ON CONCRETE BARRIER  
IN WET WEATHER

A PREMIUM AND SUSTAINABLE  
PERFORMANCE





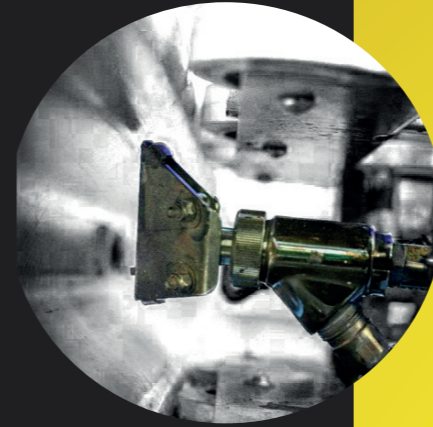
**ULTRAGUARD™**



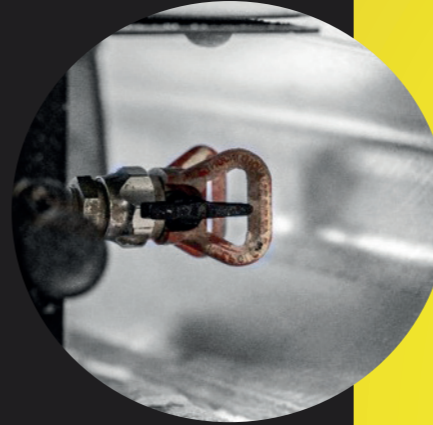
# THE ULTRAGUARD™ APPLICATION CART



## THE COMPOSITION OF THE APPLICATION CART



Bead gun for application of ULTRAGUARD™ microbeads



ULTRAGUARD™ paint spray gun



Adjustable guide wheels



Easy handling of the trolley

Easily adjustable to any type of steel or concrete vehicle restraint system for effective, high-performance application

Application on double- or triple-waved steel systems or on concrete barriers.





# HIGH PERFORMANCE PAINT ULTRAGUARD™



ULTRAGUARD™  
paint is  
"aqueous phase".

**Its solvent is  
water.**



## AVANTAGES OF PAINT ULTRAGUARD™

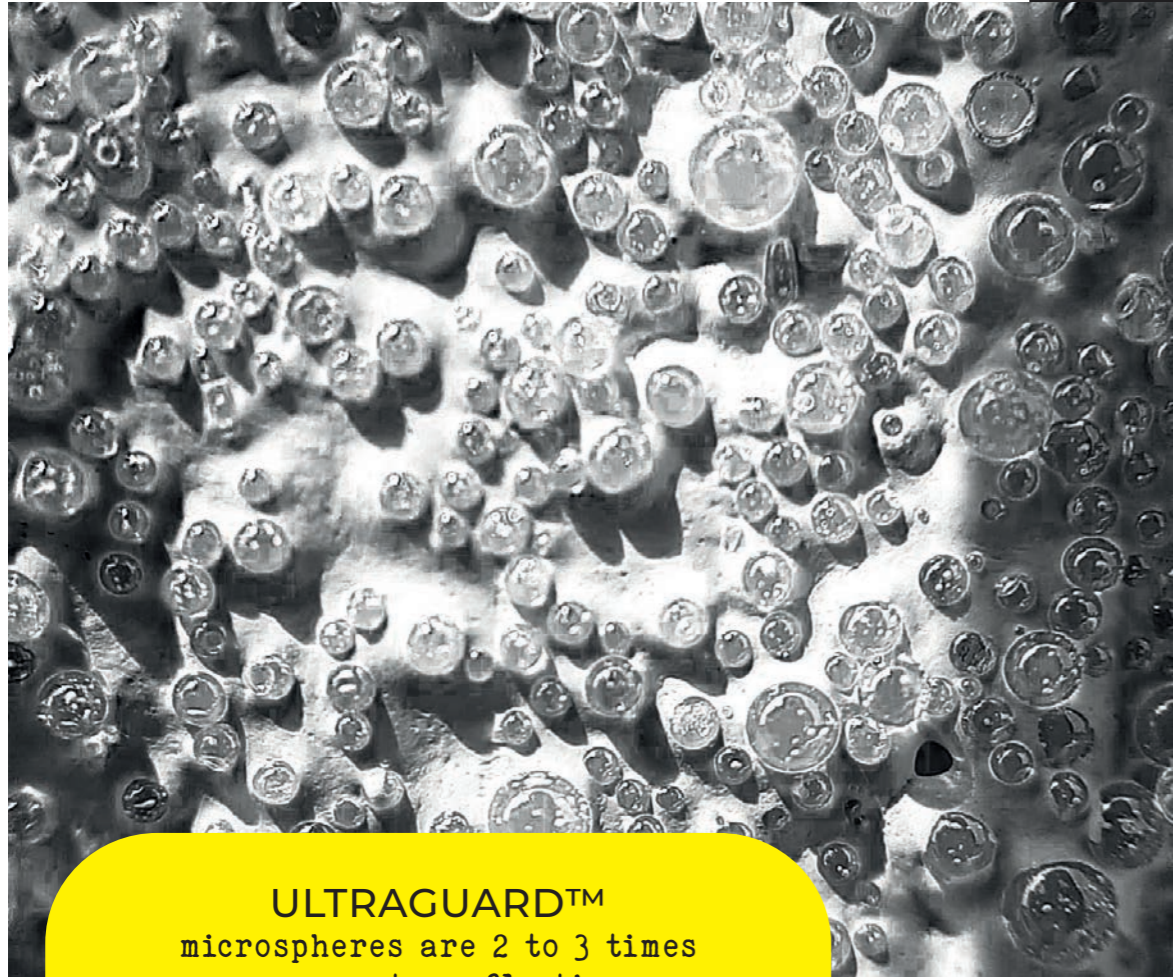
- ✓ Non-toxic, non-flammable paint
- ✓ No or low odour
- ✓ Ultra-fast drying on a variety of surfaces
- ✓ Water-based paint
- ✓ Exclusive advantage: does not run when applied vertically



The specially formulated  
ULTRAGUARD™ paint  
is produced in France in  
an automated  
and certified  
manufacturing unit.



# HIGH PERFORMANCE GLASS MICROSPHERES ULTRAGUARD™



ULTRAGUARD™ microspheres are 2 to 3 times more retroreflective than conventional beads, because their refractive index is higher.

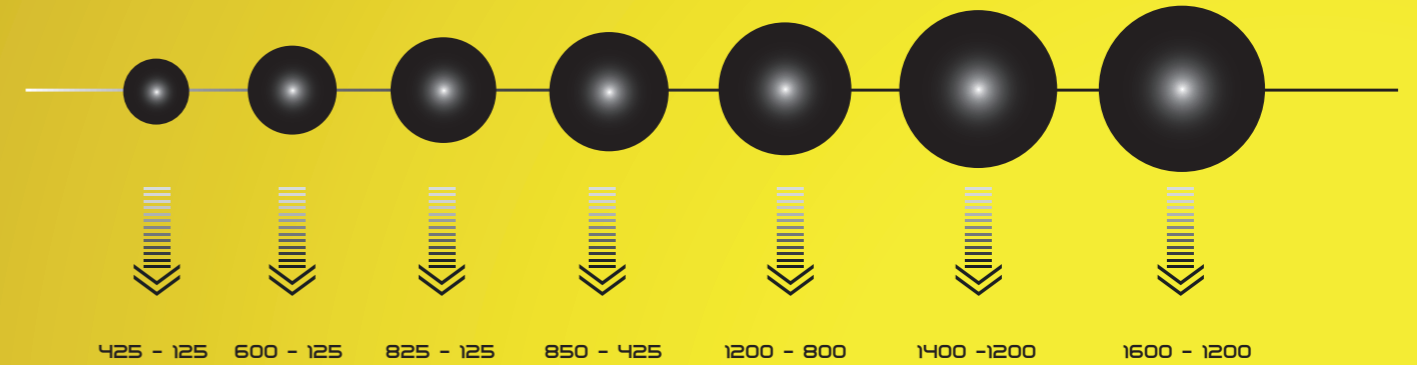
- ✓ ULTRAGUARD™ glass microspheres reflect light from vehicle's headlights back to the light source with minimal wastage.
- ✓ Derived from airport marking technology.
- ✓ They are formulated to be up to three times more retroreflective than the glass beads used in conventional road markings.
- ✓ Can be applied using an airless machine with a pressurized beads tank.

**1.9** This value is the refractive index of the microspheres, which increases anticipation time on the road and warns users of a potential danger.

ULTRAGUARD™ glass microspheres comply with the following standards:

- ✓ Particle size according to EN 1423
- ✓ Refractive index 1.9 class C according to EN 1436, the highest category cited in this standard.

The average retroreflective value is around 1000 mcd/lx/m<sup>2</sup> (white colour).



The granulometry of the ULTRAGUARD™ microbead is between 150 µm et 850 µm

## WHAT ARE THE TECHNICAL AND PRICING DIFFERENCES BETWEEN CONVENTIONAL GLASS MICROSPHERES AND THOSE USED FOR ULTRAGUARD™ ?

The production of conventional glass beads generally uses recycled glass.

The ULTRAGUARD™ microsphere known as "TTB" is manufactured in a high-tech unit and combines high-quality pure glass and high-added-value additives.

ULTRAGUARD™ microbeads are produced using a state-of-the-art technical process.

Finally, the chemical formulation of the glass is modified to obtain the refractive index (1.9) by adding certain specific compounds such as metal oxides.





# ULTRAGUARD™

## STAGES OF APPLICATION



### DRYING TIME :

- Dry to the touch : 45MIN
- Through-drying : 2H

*These times may vary according to weather conditions.*



### 01 Checking the surface

To ensure optimum performance and adhesion of ULTRAGUARD™, ensure that the substrate is dry, clean, free from loose particles (sand or dust), consistent and free from oil or grease.

### 02 Surface cleaning

To ensure optimum adhesion, you can make a pass over the guardrails with a blower before application.

### 03 Temperature and atmospheric humidity

Before applying ULTRAGUARD™, it is necessary to measure the ambient temperature as well as the hygrometry. These 2 parameters are crucial to ensure durability and adhesion. For further details, please contact us.

### 04 Agitating the paint

Shaking the paint with a mixer is a step not to be neglected before any ULTRAGUARD™ application and allows all the active ingredients to be homogenised.

### 05 Test prior to application

Carry out a test application beforehand using adhesive tape to ensure the correct width of application and evenness between the quantity of paint and microspheres.

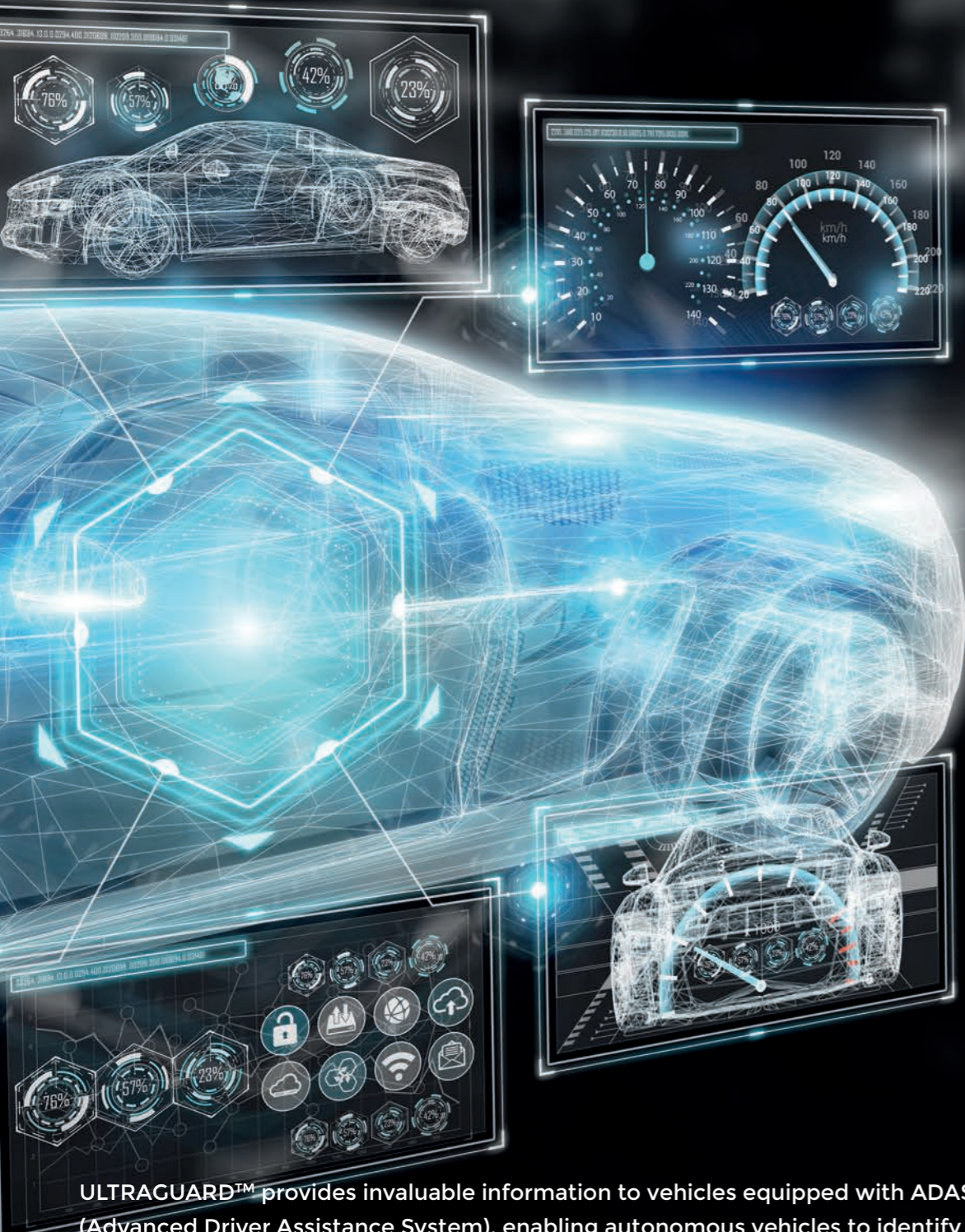
### 06 Validation of the test by calibration

Test validation by comparison with a typical standard. SOLOSAR provides its distributors with an ULTRAGUARD™ which can be used to validate paint homogeneity and the correct amount of microbeads prior to an application.

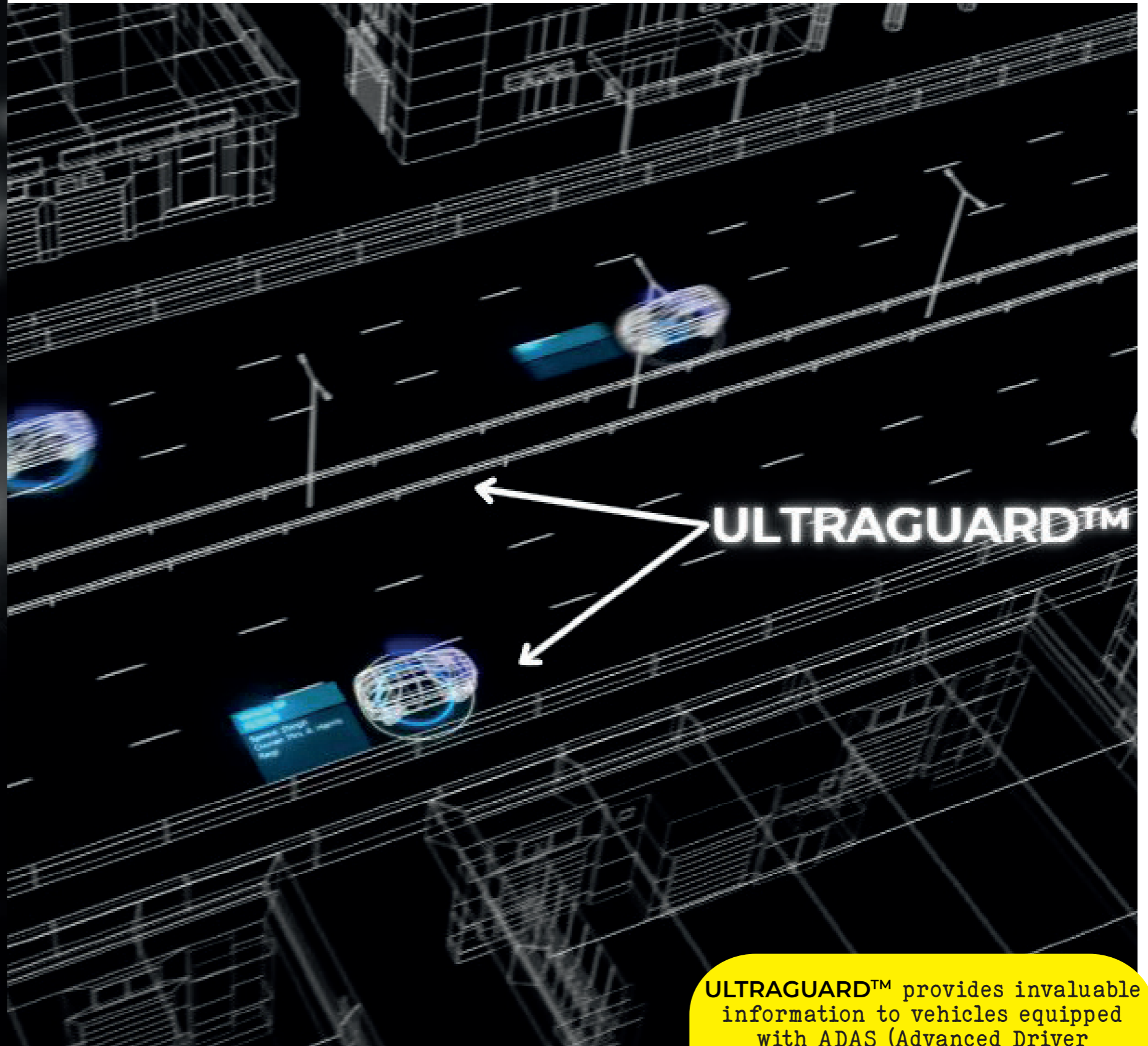


# ULTRAGUARD™

AN INNOVATION FOR  
AUTOMATED VEHICLES



ULTRAGUARD™ provides invaluable information to vehicles equipped with ADAS (Advanced Driver Assistance System), enabling autonomous vehicles to identify the the edge of the road. An experimental test was carried out at the National Technical Research Centre (VTT) located near the Arctic Circle in Muonio, Finland, and demonstrated improved 'readability' of the road surface by the ADAS instruments of an autonomous vehicle. This promising result means that guardrails equipped with ULTRAGUARD™ could be part of tomorrow's pavement thinking...

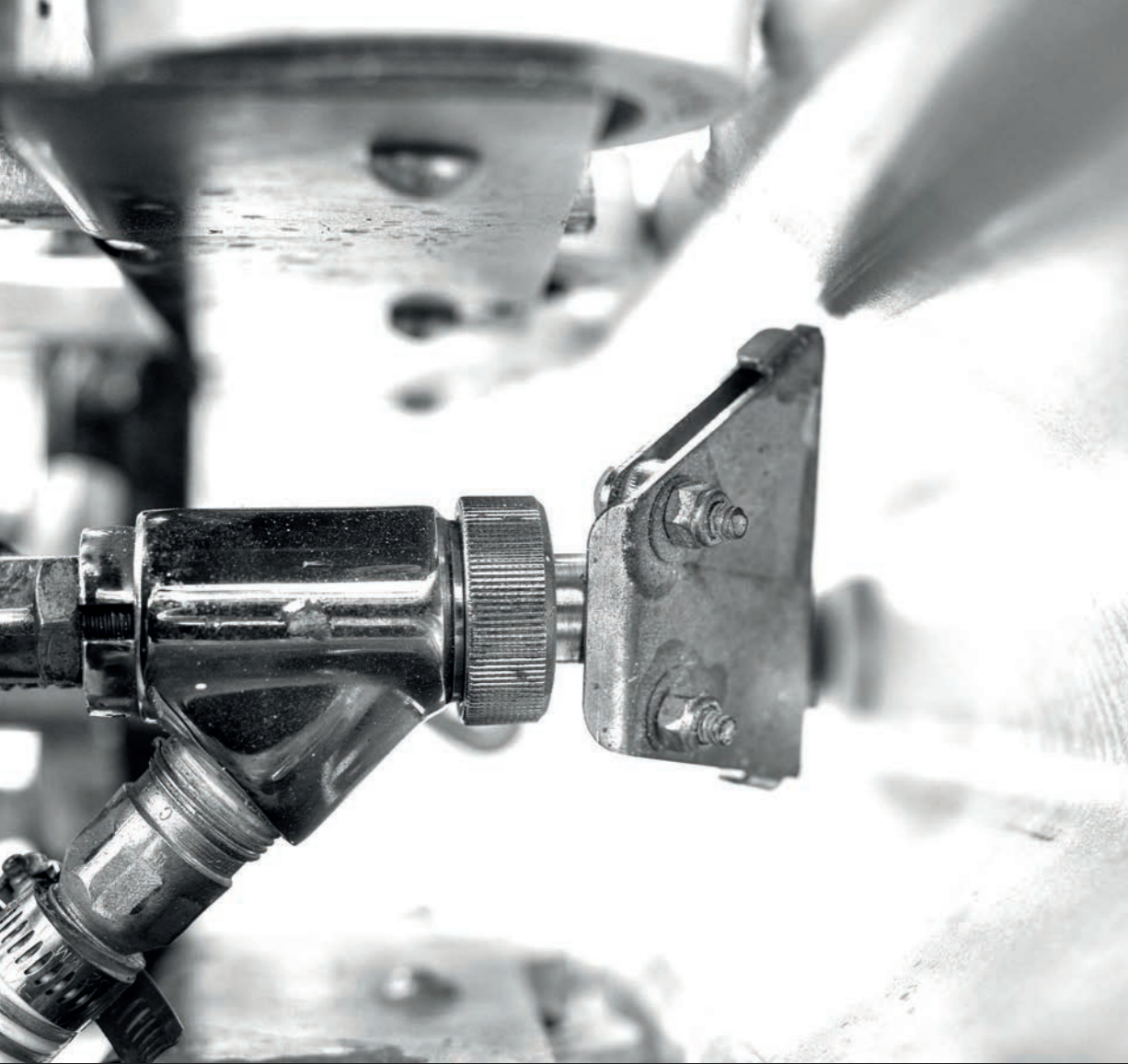


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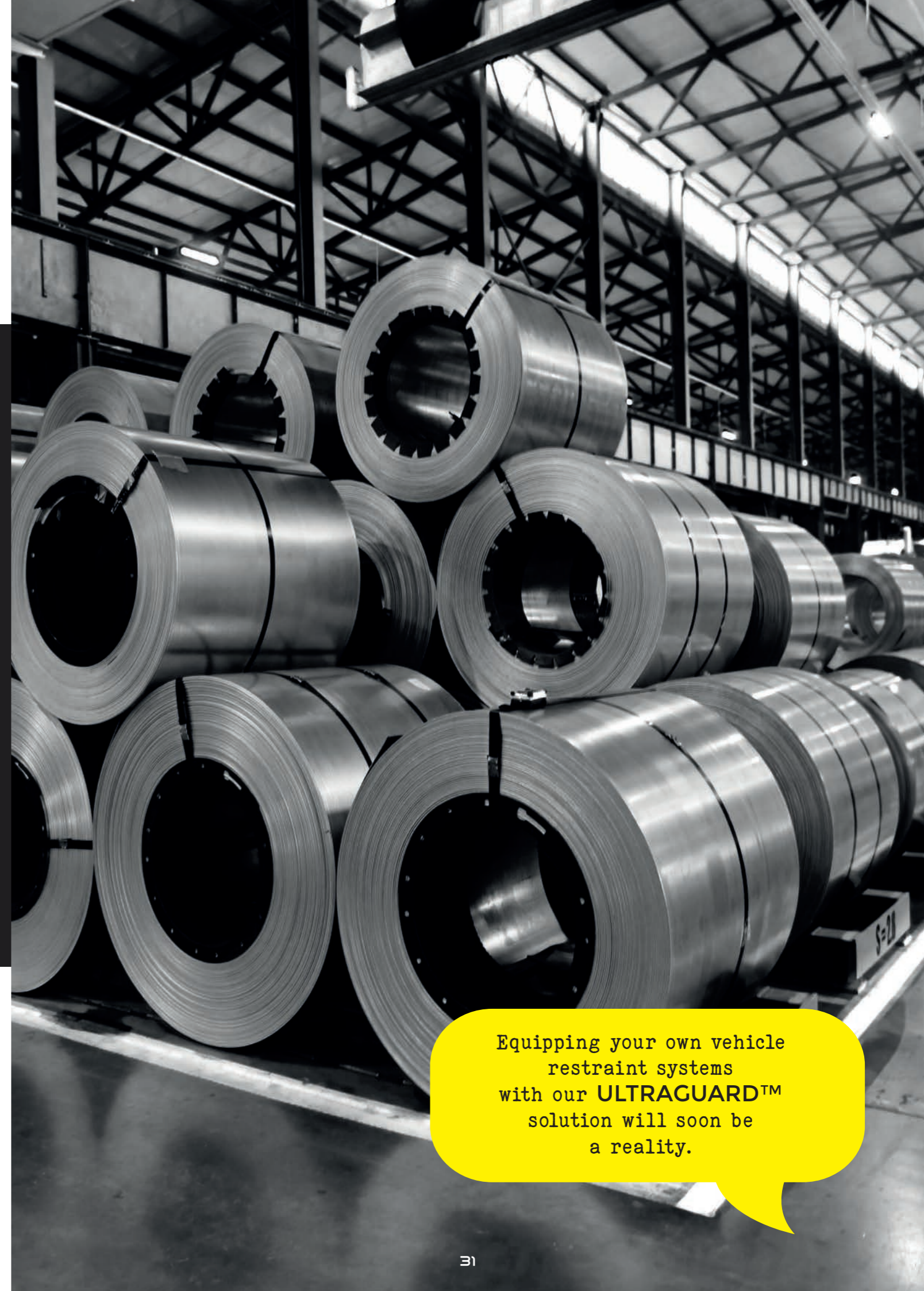


# ULTRAGUARD™

INDUSTRIAL APPLICATION



SOLOSAR® is working on the design of a machine to apply ULTRAGUARD™ to new steel guardrails after the galvanising stage.



Equipping your own vehicle restraint systems with our ULTRAGUARD™ solution will soon be a reality.



# ULTRAGUARD™ MAINTENANCE



## GLASS MICROSPHERES

The adhesion of ULTRAGUARD™ glass microspheres to the paint matrix is durable because the coating is protected from wear and friction.

ULTRAGUARD™ glass microbeads are self-washing in the event of rain.

## THE ULTRAGUARD™ PAINT

adheres optimally to its 2 preferred surfaces (galvanised steel and concrete). Its **resistance over time is excellent.**

For a white paint, UV resistance poses no problem, nor do temperature variations.

A silane-based bonding coating promotes bonding between microbeads and paint.

# ULTRAGUARD™ THE WARRANTY

We give  
**A MINIMUM LIFE EXPECTANCY  
OF 5 YEARS.**

The quality of paint and beads (before application) is guaranteed in terms of their intrinsic characteristics and compliance with standards.

**And R&D continues...**





# TRAINING AND GLOBAL EXPERTISE



Customized Training and in situ for ULTRAGUARD™ installation

SOLOSAR OFFERS  
A CHOICE OF

## THREE LEVELS OF TRAINING



### GOLD

SOLOSAR offers its GOLD training course to teams new to airless application. The aim of this training is to master the fundamentals with theoretical and practical workshops in order to be able to apply ULTRAGUARD™ in the best possible conditions.



### PLATINUM

SOLOSAR offers its PLATINUM training course to teams who want to improve their knowledge of airless application. This training contains a theoretical part and a practical part with in-depth details on ULTRAGUARD™ application.



### EXPERT

SOLOSAR offers its EXPERT training course for getting to grips with the application trolley. It contains a practical part allowing you to start ULTRAGUARD™ applications at the end of the training.



# ULTRAGUARD™



Design and print : KREAZONE kreazone.fr



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