RESYSTEN
protective coatings

Reference Booklet

Success rate

More than 100.000 m2 treated.

More than 75% of our pilot projects has converted into long-term contracts.

RESYSTEN protective coatings

Healthcare – Our mission

Prevention of unnecessary HAI infections!

- Treat surfaces of ICU and Surgery units to elminiate the risks of SSI
- Treat surfaces of Oncology, Traumatology and Urulogy units to prevent HAI
- Treat surgical instruments to avoid being a fomite (endoscopes, catheters, diagnostical instruments, etc…)

The examination of the tested surfaces resulted in outstanding values. It can be clearly seen from the data that the Resysten solution can dramatically reduce the amount of contamination and the possibilities of infections.

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Markhot Ferenc Hospital EGER

North-East Hungarian county central Hospital of 1014 beds, 4 locations, 35.000 patients yearly

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Agreement framework

Contract duration: 36 months

Financial structure: flat-rate, monthly fee

Service includes:

- First time application of the nearly 4.000 m2 identified critical surface
- Regular measurement and discussion of efficiency
- Reserve replacement (for e.g. changed equipment or furniture in a hospital, repainted wall in a hotel, changed windscreen on a bus)
- Renewal of the treatment annually

RESYSTEN protective coatings

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Project scope
surfaces treated

- Phone buttons and screens
- Beds, bedrails
- Nightstands
- Wardrobes
- PC, mouses and keyboards,
- Doors, light switches
- Toilettes, pissoirs
- Refrigerators
- Counters
- Washers
- Special electrical devices for every department (pumps, infusion stands, fitness machines, EKG, etc.)
- Seats
- Dishwashers
- Carriers
- Tables
- Examination beds
- Showers

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Project scope
logistics

~ 4.000 m2 treated heath care equipments and critical surfaces of all departments within 22 days

A team of three carried out every field task. Our head of technology was coordinating with the **nursing directorate** and the lead nurse of the departments.

Spraying technicians were going room by room during the day, and they worked in the consulting area (clinic)

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Semmelweis University II. Pediatric Clinic

Following the partial renovations of the Clinic, the surface treatment was obtained on the oncology department.

In the project, the painted walls of the rooms, the doors of the doors,the surfaces of washbasins, the touching surfaces of the bathrooms, bedside cabinets, bed ends, infusion racks have got the treatment.

The main purpose of the project is to prevent ill children under treatment with weak immune functions and to avoid infectious diseases that can be overcome by the healthy body, but a huge risk to them in that case. The project will be followed by the co-operating partnering for longer periods and the results of the sampling measurments will be evaluated and published.

RESYSTEN protective coatings

Budai Hospital of the Hospitaller

The project involved coatings on the following surfaces:

- Medical tubs.
- Stainless steel sink and faucet (gastroenceorology)
- Tilewall for drying (gastroenceorology)

The purpose of the treatment is to further improve the hygiene conditions and to minimize the possibility of contamination between two disinfectants process.

The project will be followed by the co-operating partnership with further projects in extended areas based on the content of the published measurement results.

Csolnoky Ferenc County Hospital in Veszprem

Cooperation with surface treatment of the Urological Department's examination room.

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Lumniczer Sándor Hospital-Clinic Kapuvár

We have cooperation within the framework of the EU-EFOP Operational Program, under the *"Implementation of a Decontamination Support System"* project.

the Hospital decided to use the Resysten Hygiene Coating System for washrooms and toilets in the Urology Rehabilitation Department, at the spa facilities and in the Chronic Internal Medicine Department.

We are particularly proud of the **long-term professional cooperation** that will provide effective prevention to the hospital with the Resysten coating system **for 6 years**.

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Feső-Szabolcsi Hospital Kisvárda

As a responsible and innovative healthcare institution, the Felső-Szabolcsi Hospital has chosen Resysten's permanent hygienic coating to introduce a protective coating system on **all critical surfaces of the entire hospital**, which defends not only the healing patients of the hospital for a year, but also the health of the healthcare staff serving in the hospital. Thanks to the hospital's exemplary approach and collaboration, the deployment of the defense system could only take place over 4 weeks-ends.

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Medcity Medical Center

The Medcity Health Center choosed the Resysten coating system, we have signed a **3-year service contract** with them.

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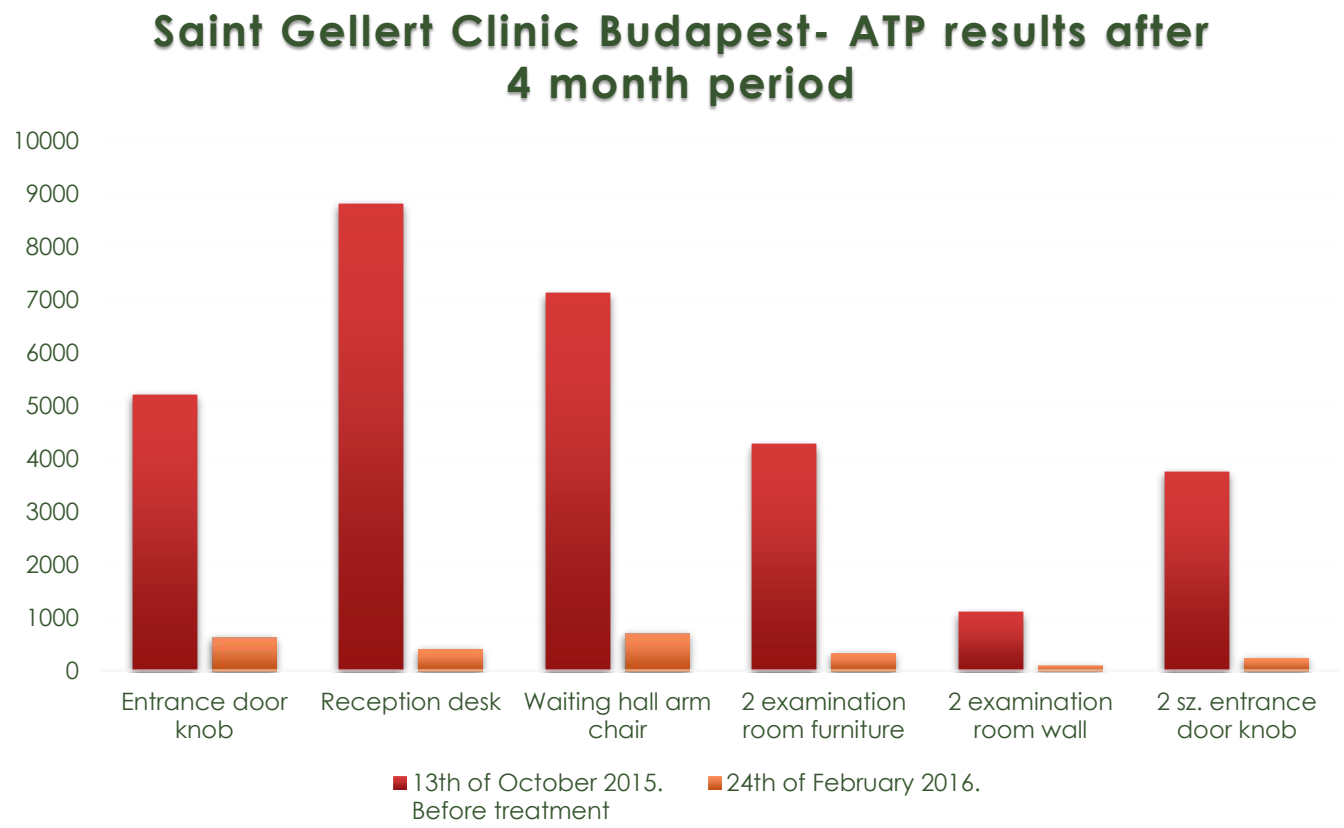
Healthcare clinic

gynecology examination department and waiting room – 2015.



SZENT GELLÉRT MAGÁNKLINIKA
www.sztgellert.hu

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Pharmacies

In cooperation with the National Associationof Private Pharmacists, Resyten coating was applied to the three reference point of Budapest's pharmacies.

The aim of the project is to provide protected environment to the customers themselves to significantly reduce the risks of pathogenic crossinfections.

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Treated surfaces In pharmacies

The most critical surfaces frequently touched by the customers:

- Entrance Door Handles and their Environment
- Signal bell, intercom
- Bail signing stand
- Delivery desk, publishing window and their environment
- Customer desks and chairs

Recommended for treatment:

- Critical interfaces used by staff
- Aseptic room (and related environment) equipment and boundary surfaces
- Laboratory work surfaces
- Enemy work surfaces
- Sink and social rooms

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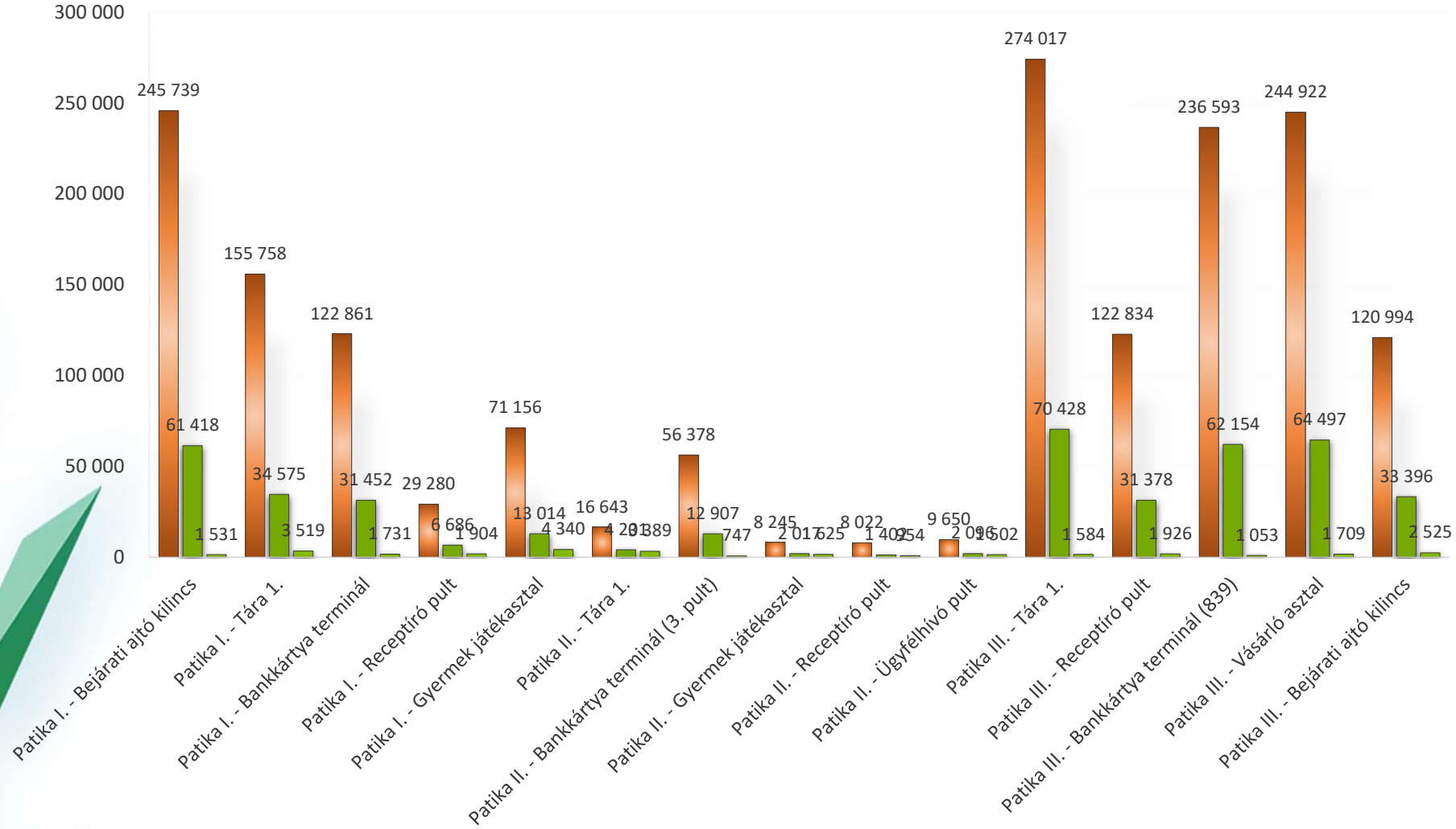
Pharmacies Results



RLU values: Before treatment | Measurements after 1 and 3 months

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OMSZ ambulance cars

The project scope is to protect the inner patient area of the ambulance cars providing preventive and long-term solution against cross-infections between the conventional disinfection procedures by inhibiting the formation of microbial plaques and biofilms. The applied coating on five vehicles is continuously reducing the risk of nosocomial infections.

Treated surface:

the entire interior surface of the ambulance caregiver

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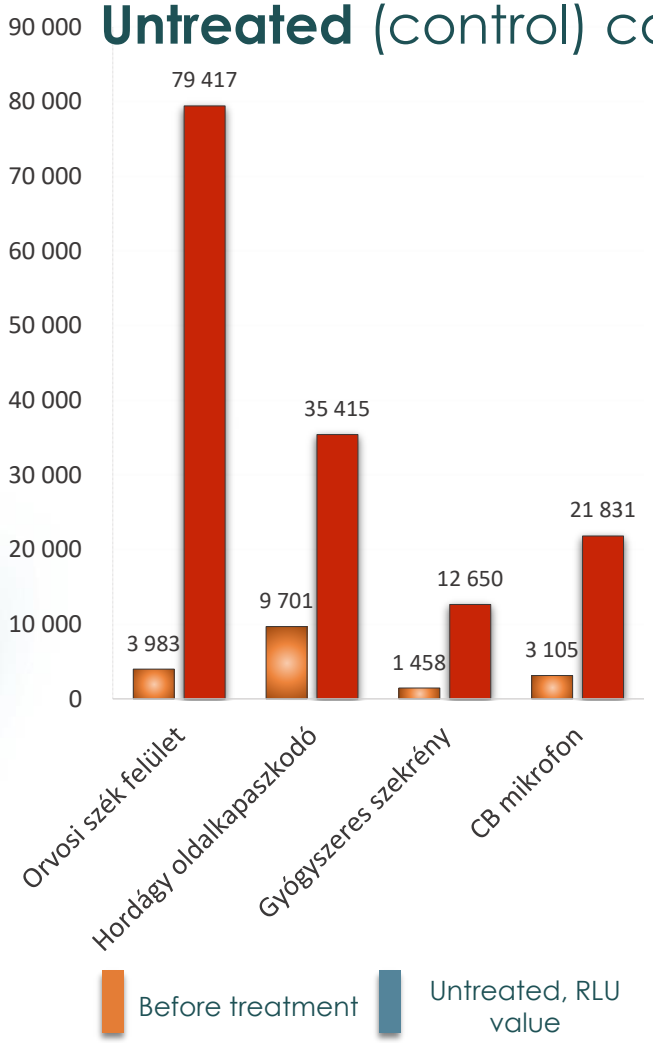
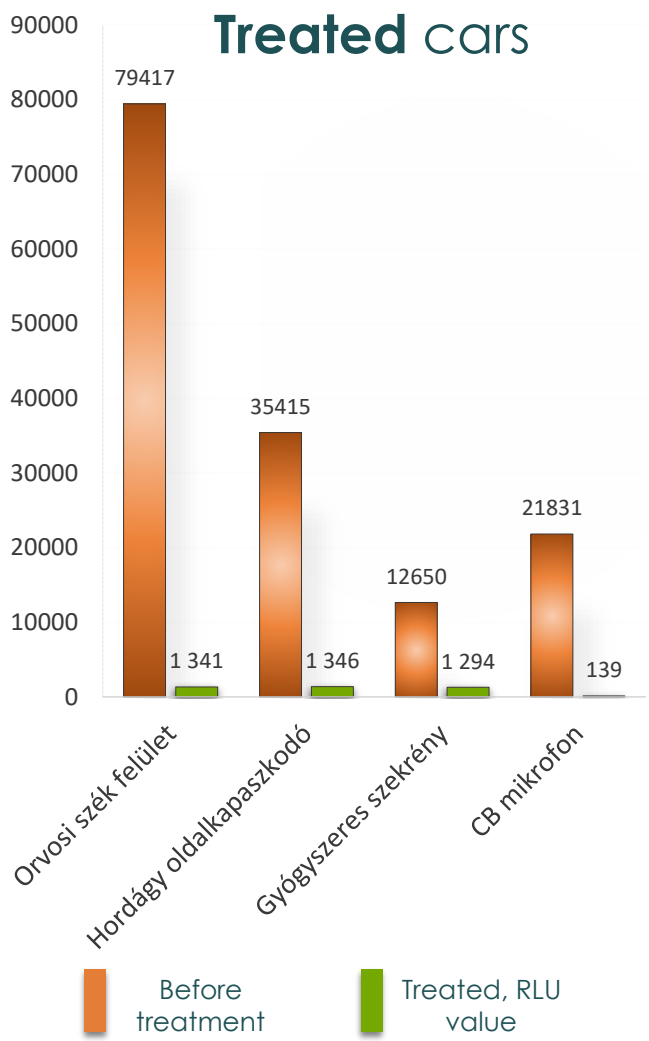
OMSZ Ambulance cars - results





RESYSTEN protective coatings

Benefits of use – Healthcare

- Resysten coating has long lasting effect because it is building into the surface at a molecular level. Since it doesn't come off the surface it gives a continuous protection against microbes. In everyday life this way there are no mistakes can be made in everyday sanitization process and it is active round the clock.
- By treating the surface a hospital can fight with HAI (Hospital-acquired infections) and can be a safe place to heal. This means a cheaper recovery for the people and significantly cheaper care for the government.
- Resysten coating is tested for neutralizing MRSA (Methicillin-Resistant Staphylococcus Aureus) and SGS reports prove that it works. Explanation is simple, against a photocatalytic reaction it is impossible to build up any kind of resistance since it is a natural physical process.

RESYSTEN protective coatings

Some of our references

Public transport

574+ pcs.

Vehicle in public transport

Full protection of the interiors

Exclusive Transport Company in Debrecen City, Hungary

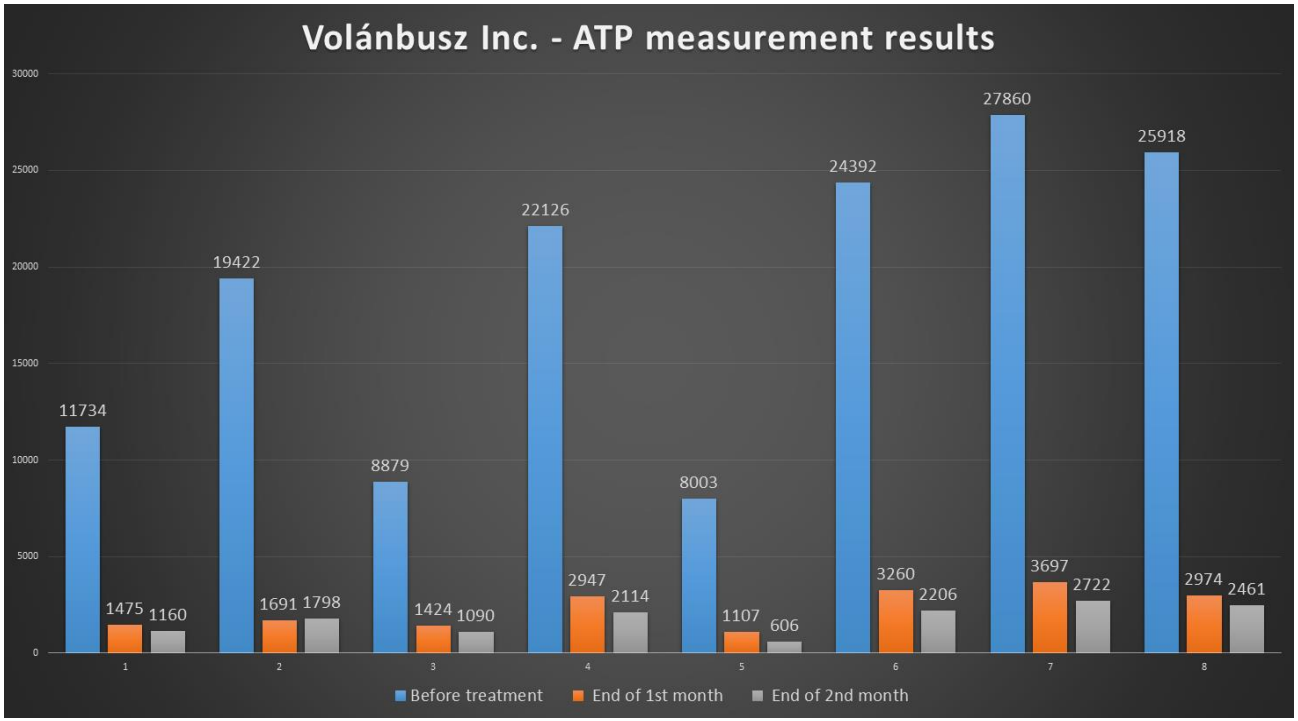
One of the leader railway manufacturer in the world

The leader public transport provider and operator company in Hungary

RESYSTEN protective coatings

Measurement results

The examination of the tested surfaces resulted in outstanding values. It cab be clearly seen from the data that the Resysten WhiteTitan™ solution can dramatically reduce the amount of contamination and the possibilities of infections on the vehicles of public transport.



Protective coating of buses (interior) surfaces as follows:

- Passenger seats (seat, back-rest, handle)
- All handles and all handrails
- Doors
- Side windows
- Rear window and windscreen
- Ticket handle and get-off signals
- Entire cab;

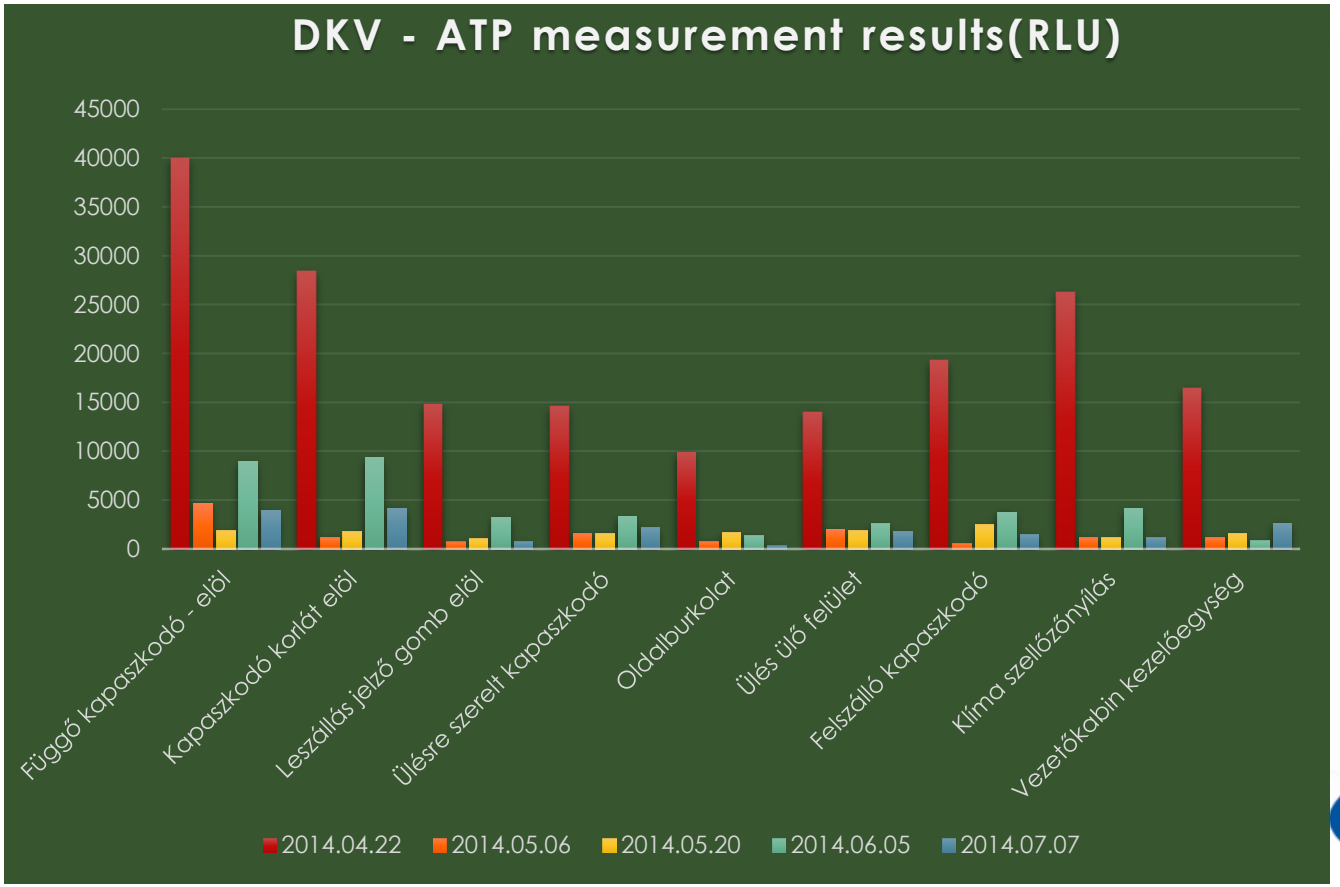
Results cover: 3-month examination period, once a month on 15 vehicles chosen randomly

RESYSTEN protective coatings

Measurement results

the toughest challenge

Debrecen Transport Company - CAF trams entire inside surface
2014-2015



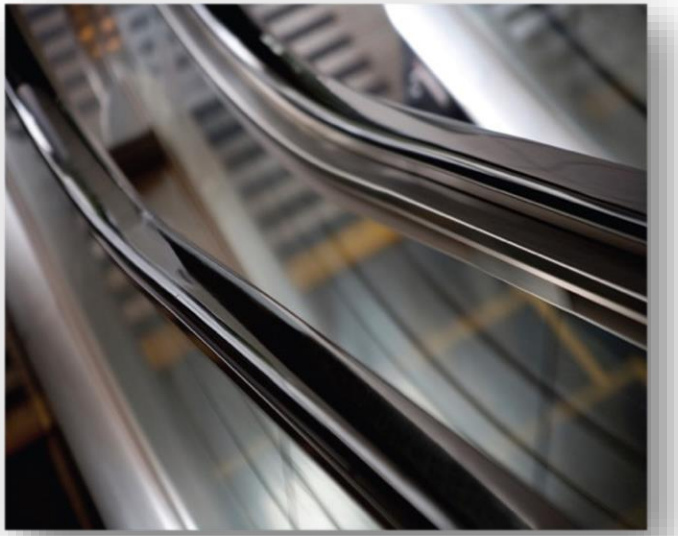
Some of our references

Public transport

27 kilometres

escalator handrail at the Metro lines of Budapest.

More than 1 million passenger a day!



RESYSTEN protective coatings

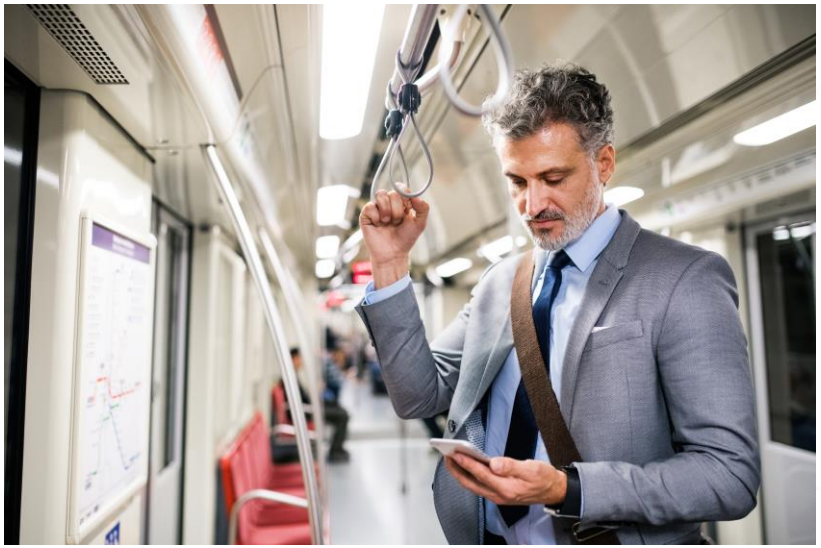
Some of our references

Public Transport

After the successful project of treating the rubber escalator handrails on Budapest subway lines, we have received a new order from Budapest Public Transport Company (**BKV Zrt.**): they asked us to treat

222 reconditioned subway trains

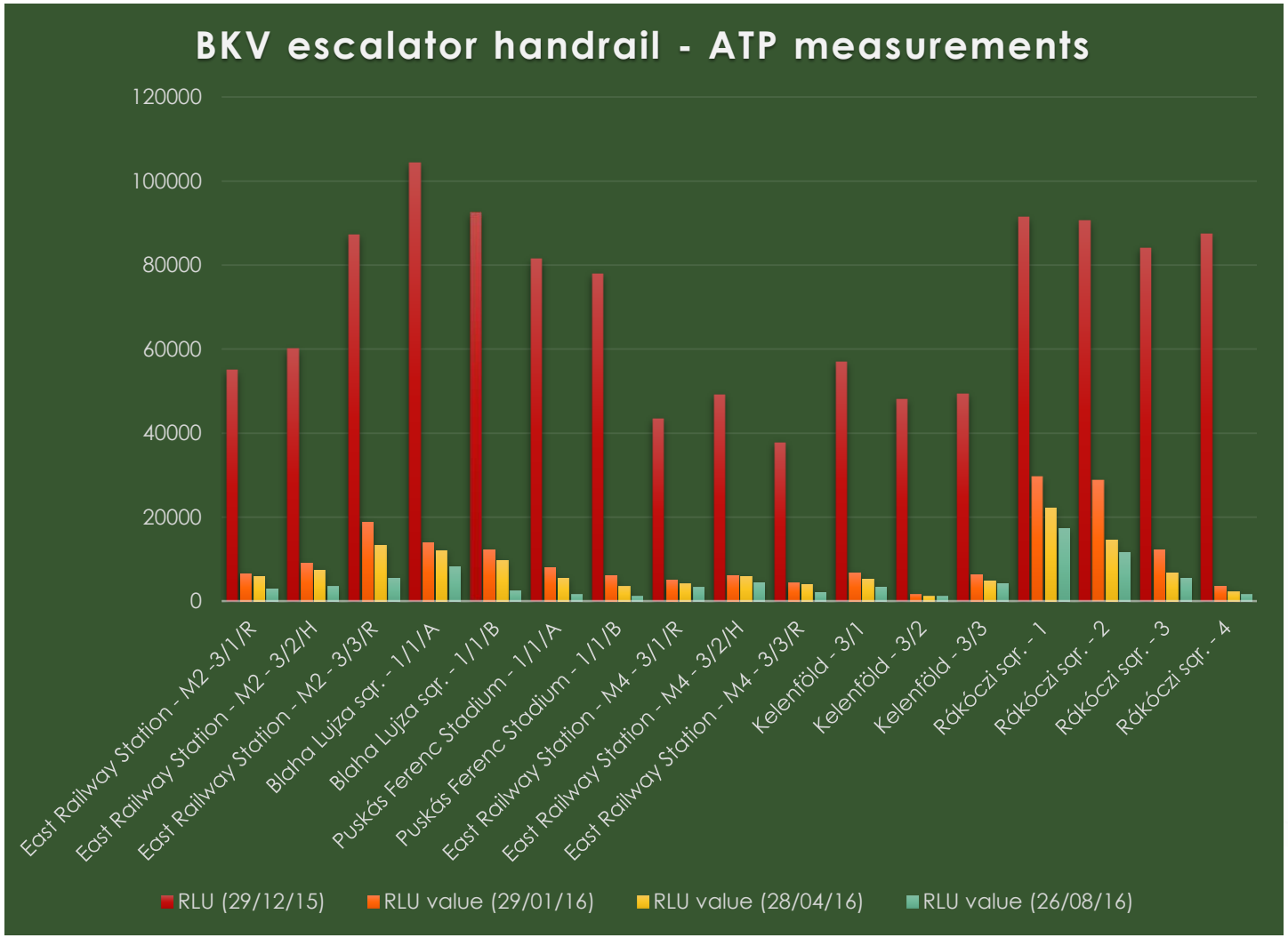
critical surfaces.



RESYSTEN protective coatings

Measurement results

the toughest challenge



RESYSTEN protective coatings

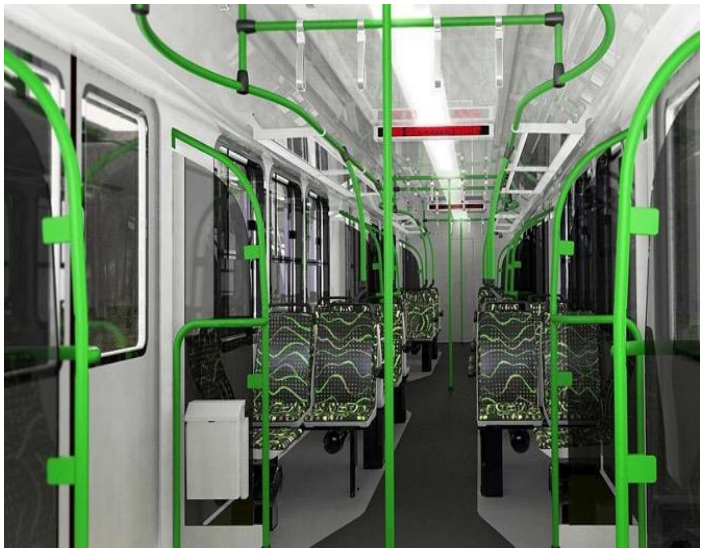
Some of our references

Public transport

Seats and handrails on **294**

trains at the Suburban Railways of Budapest.

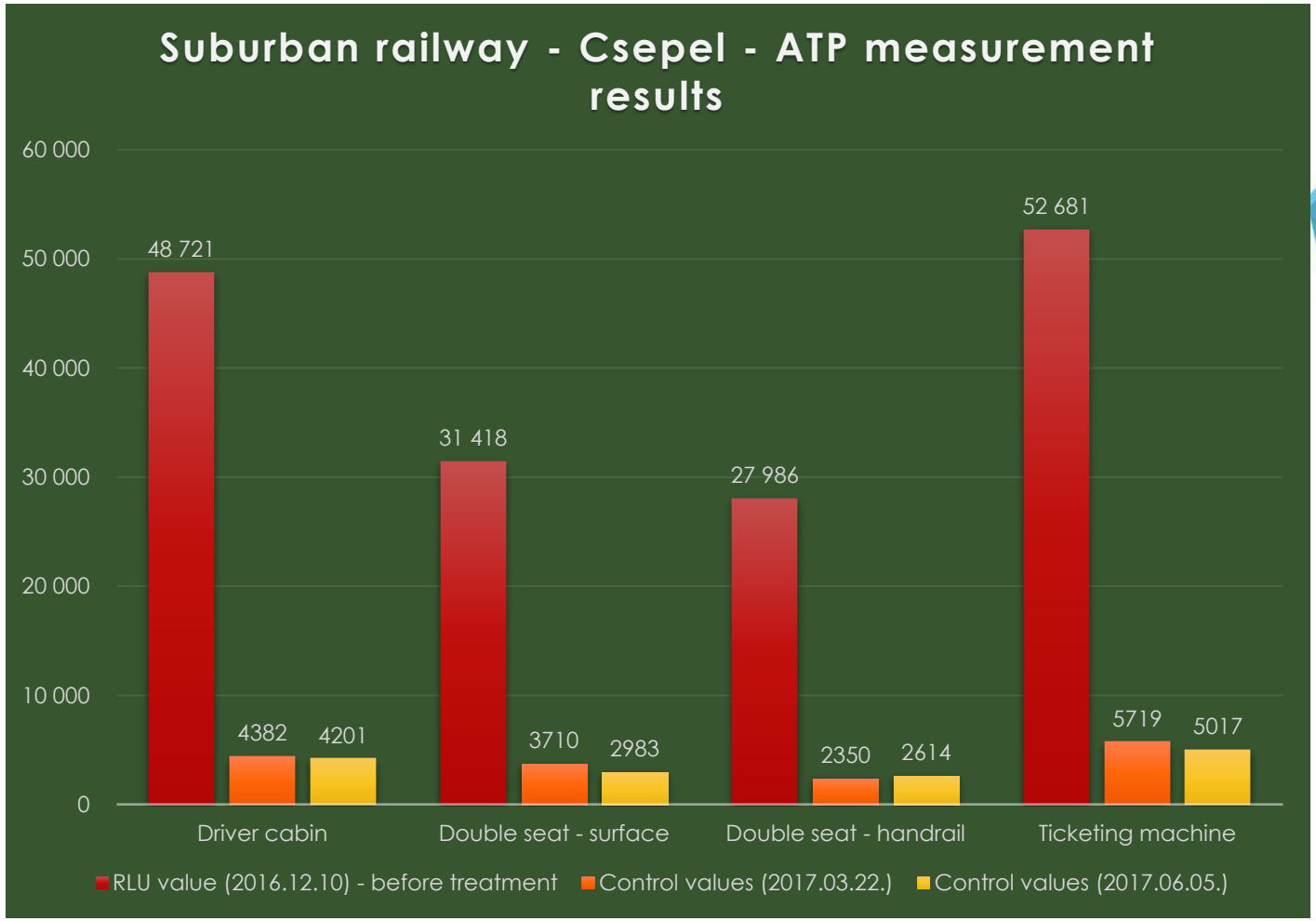
Up to 200.000 passenger a day!



MÁV HÉV

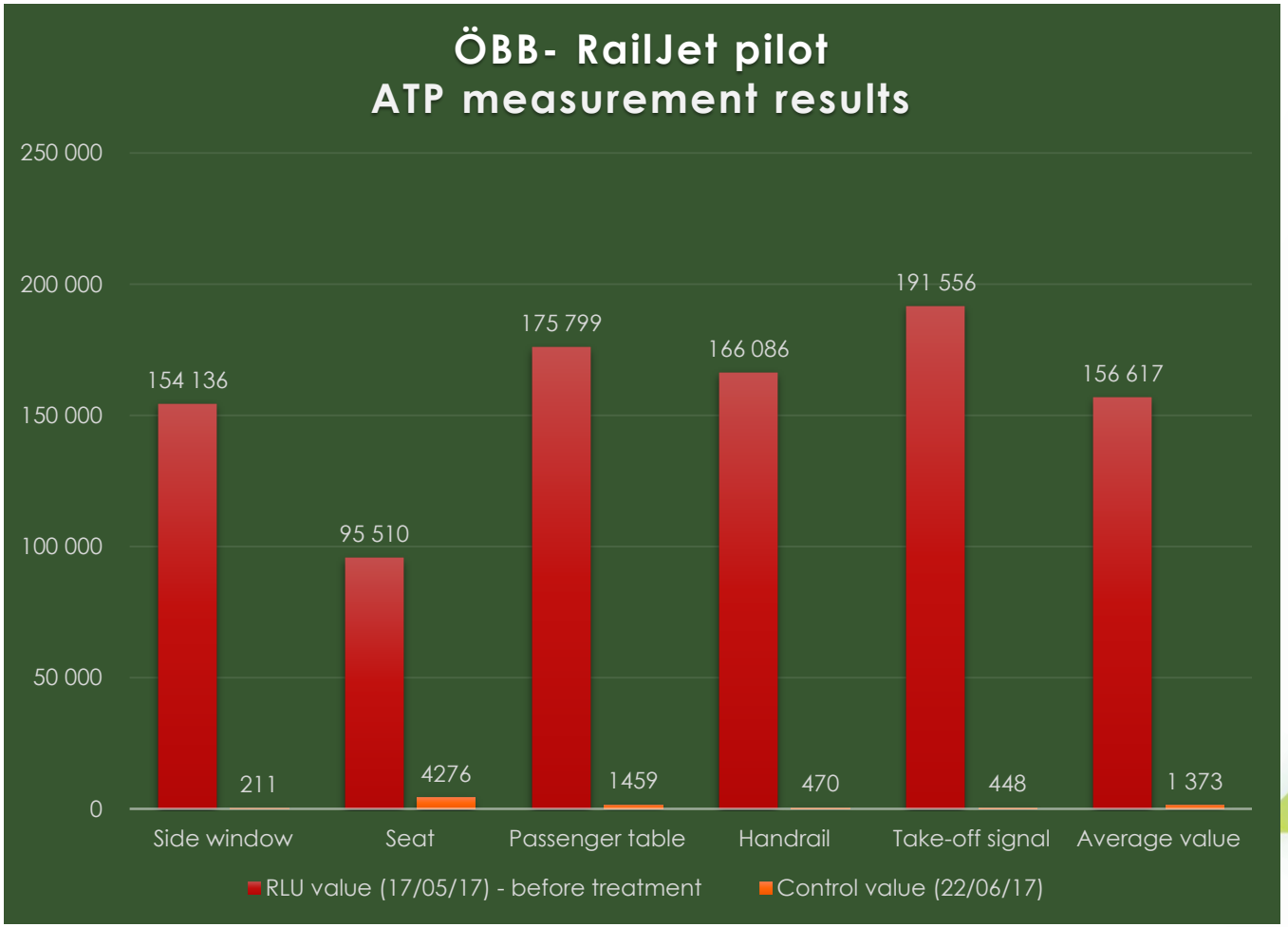
RESYSTEN protective coatings

Measurement results



RESYSTEN protective coatings

Measurement results



Benefits of use – Public transport

For the passenger:

- **Lowering risk**: In our experience treated surface contains 85-93% less microbes, than an untreated surface
- **Travel safe**: By using WhiteTitan™, Service Providers can decrease the spreading of respiratory infections or catching other diseases by touching anything. (A recent study in the United Kingdom demonstrated an increase of respiratory infections /colds and flus/ to persons if they had ridden a bus five days previously /Troko et al., 2011/)
- **Feel comfortable**: neutralizing the smell creates more pleasent environment

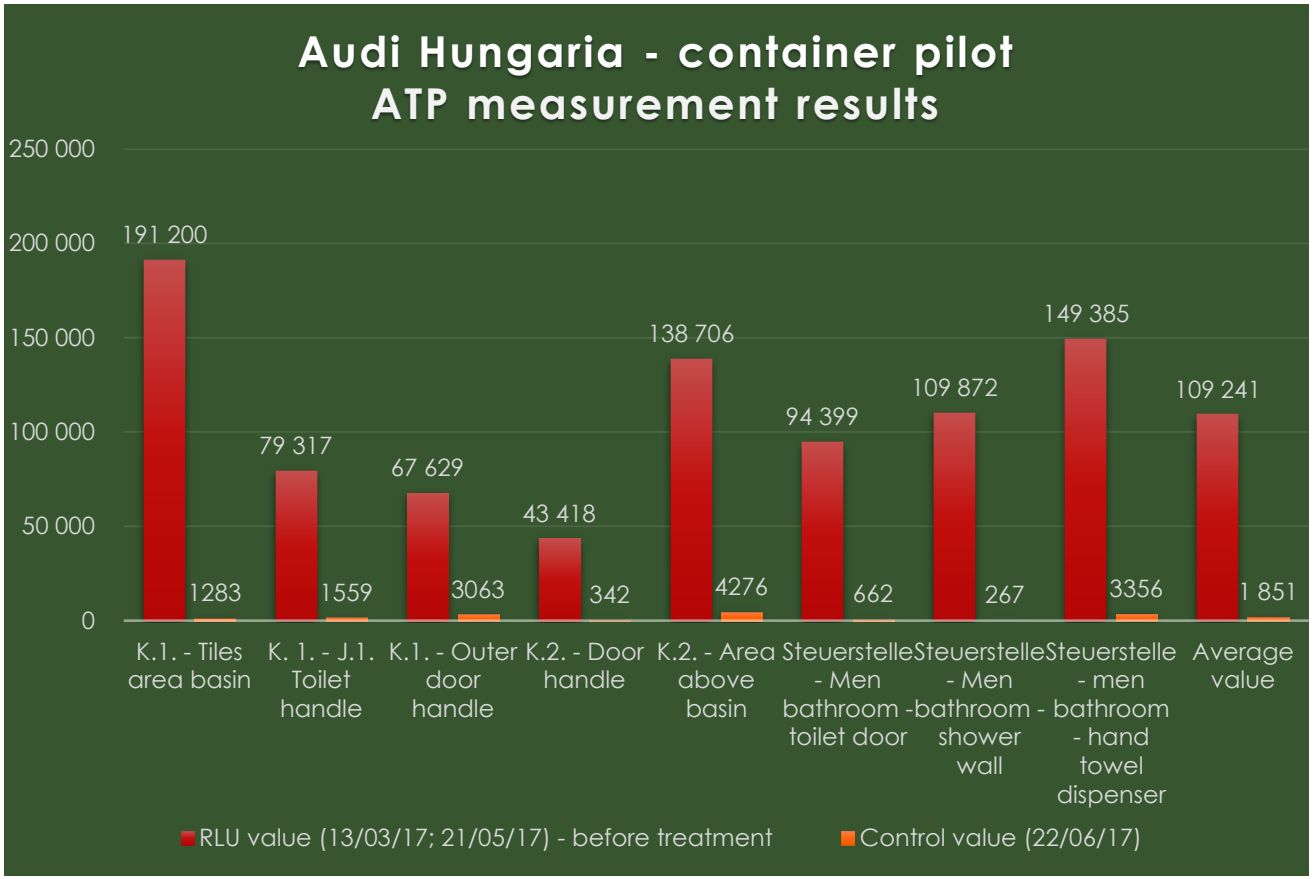
For the Service Provider:

- **Reliable:** Public Transport companies can rely on a durable anti-microbial system instead of treating critical surface with biocidal chemicals. Chemicals has a fast aging effect, so protection is only working until a certain time (couple hours or days) and only effective until the *next touch of a hand*.
- **Define clean**: With this system the corporation can standardize cleaning services and hygenie.
- **CSR:** A sustainable, green sulution that attracts travelers to use public transportation is the best possible message to send

RESYSTEN protective coatings

Some of our references

Public spaces



Audi Hungaria

RESYSTEN protective coatings

Benefits of use – Public spaces

For the passenger:

- **Lowering risk**: In our experience treated surface contains 85-93% less microbes, than an untreated surface, significcaly lowering the ***Sick Building Syndrome*** effect.
  The main group of its symptoms are the followings according to the US National Library of Medicine, National Institutes of Health: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796751/)
- **Safe environment**: By using Resysten, Service Providers can decrease the spreading of respiratory infections or catching other diseases by touching anything. Our coating is effective against extrinsic allergic alveolitis, Legionnaire's disease, humidifier fever, pneumonia and occupational asthma
- **Feel comfortable**: neutralizing the smell creates more pleasent environment

For the Service Provider:

- **Reliable:** Public Transport companies can rely on a durable anti-microbial system instead of treating critical surface with biocidal chemicals. Chemicals has a fast aging effect, so protection is only working until a certain time (couple hours or days) and only effective until the *next touch of a hand*.
- **Define clean**: With this system the corporation can standardize cleaning services and hygenie.
- **CSR:** A sustainable, green sulution that attracts travelers to use public transportation is the best possible message to send

RESYSTEN protective coatings

Some of our references

Food processing

7.300 m2

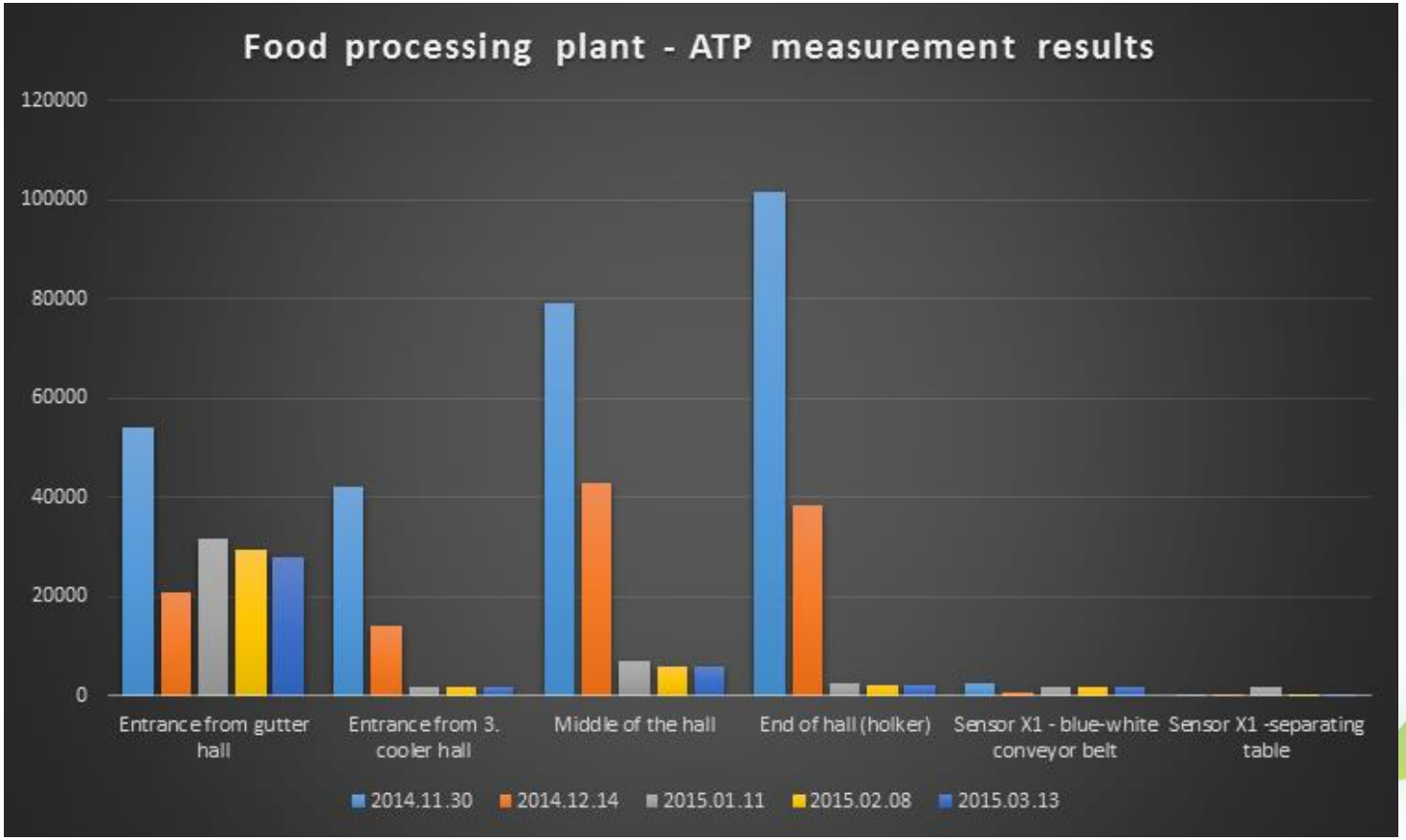
Chicken meat processing factory

1.300 m2

Meat processing factory

RESYSTEN
protective coatings

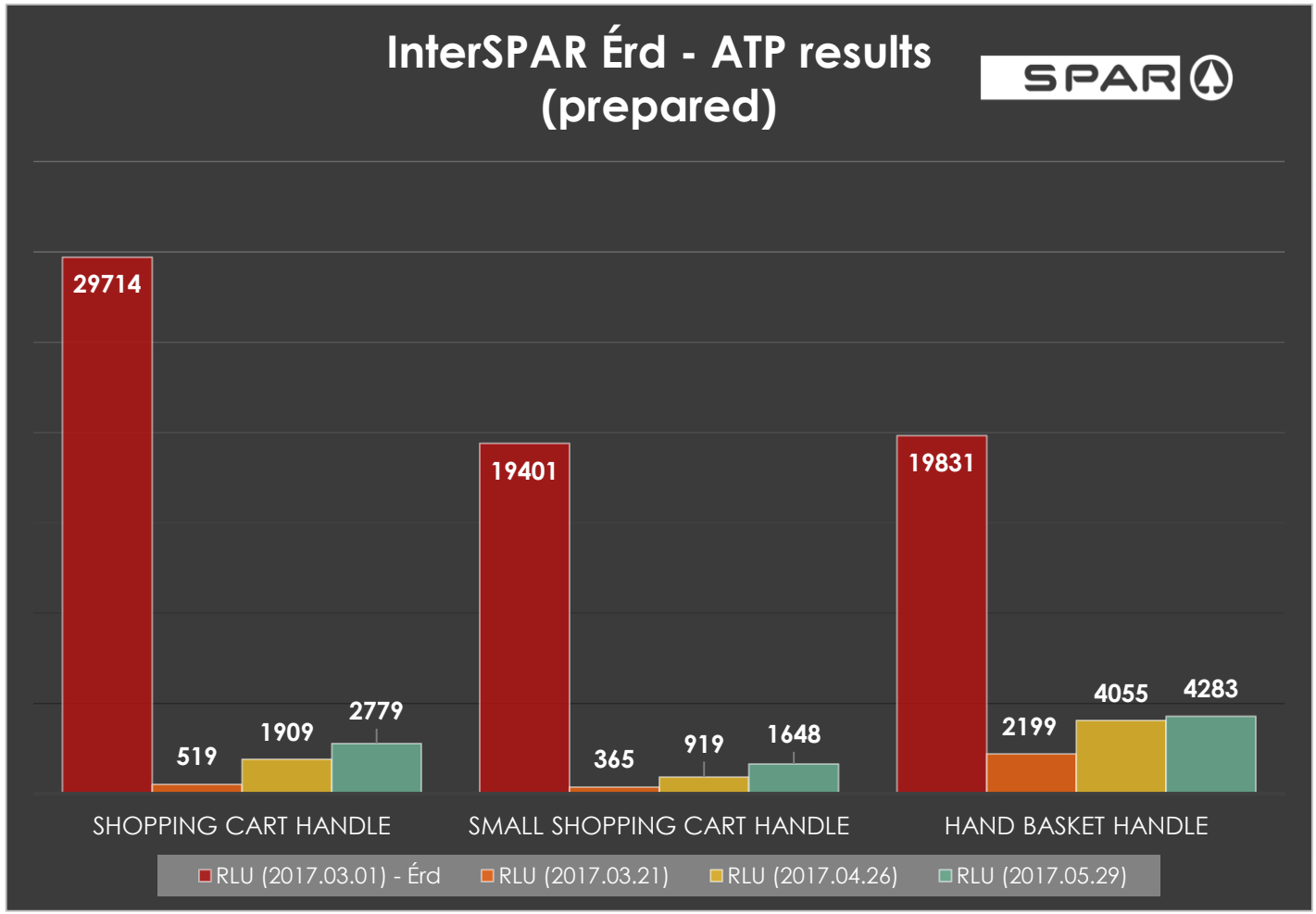
Measurement results



RESYSTEN protective coatings

InterSPAR Shopping mall

WhiteTitan treatment of 800+ shopping cart handles



RESYSTEN protective coatings

Benefits of use – Food processing

- **Lower the risk:** By treating the machinery or the bounding surface, client can avoid the presence of Salmonella, Listeria, E. Coli, or any other bacteria, fungi or virus can contaminate the product.
- **Extend shelf life**: the already contaminated raw product will not be a fomite, and won't carry the microbes over the other products.
- **Pass audits easily**: By treating all the bounding surfaces the plant can achieve a much better overall microbiological environment.
- **Avoid human error**: Since the chemicals that are used nowadays are losing their effects within hours or days, anti-microbial coating provides continuity in this matter.
- **Open for new:**Using less biocides or using them in lower concentrates is environmental friendly means better market position
- **Find root cause:**By treating the clothing's, employees will not be able to drag microbes with them to the plant.
- **Increase efficacy:** Coating the surfaces in a broiler farm or breeder farm can reduce the percentages of deaths of growing animals. Kills any kind of viruses for example bird flu, or SARS, HxNx viruses.

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Other references

- **Fast food restaurant network**: Kitchen work tables, restaurant tables, cashier desk, drink desk, chairs and toilet was treated. This is an important step in the Food Safety Program of the customer, and important message for the clients.
- **Shopping mall:** toilets were treated to reduce risk of infections
- **Wheel chairs:** users are sitting in their wheel chairs most of the time during the day. Hygiene is very important for them. Treating the seat and the backrest material provides them odorless, allergen-free and contamination free
- **Spa (Budapest Dagaly) :** Steam bath and surroundings creates optimal environment for fungi and mould. Resysten proves to be effective even on ceilings to prevent the groth of fungi or mould

RESYSTEN protective coatings

SGS certified results

The leap from cleaning to total protection, stabil infection control.

Our services are compliant with international standards and are certified by SGS Labs.

SGS is the world's leading inspection, verification, testing and certification company operating a network of more than 1,800 offices and laboratories around the world.

www.sgs.com

Test organisms	Initial inoculation (CFU / ml)	Test time on coated surface	Test result	Reduction (%)
Candida Albicans ATCC 10231	4,3 x 105	24 hours	Not Detected	>99,99%
Esherichia Coli ATCC 8739	1,1 x 105	1 hour	Not Detected	>99,99%
Klebsiella Pneumoniae ATCC 4352	3,7 x 105	1 hour	Not Detected	>99,99%
Pseudomonas Aeruginosa ATCC 9027	9,6 x 105	30 mins	Not Detected	>99,99%
Pseudomonas Aeruginosa ATCC 9027	9,6 x 105	4 hours	Not Detected	>99,99%
Staphylococcus Aureus ATCC 6538	3,6 x 105	1 hour	Not Detected	>99,99%
Methicillin Resistant Staphylococcus Aureus ATCC 33591	1,1 x 105	18 hours	Not Detected	>99,99%
Trichophyton mentagrophytes ATCC 9533	2,9 x 105	1 hour	Not Detected	>99,99%

RESYSTEN protective coatings

SGS certified results

Test of our antibacterial nitril gloves.

Significant, progressive increasing of antimicrobial activity

15 minutes after treating

Test Report **Report No: ASH16-007950-04** **Date: Mar 16 2016**

TEST METHOD(S):
Refer to ISO 22196:2011 Measurement of antibacterial activity on plastics and other non-porous surfaces

TEST ORGANISM(S):
Klebsiella pneumoniae ATCC 4352

TEST RESULT(S):

Test Organism(s)	Concentration of bacteria (cfu/mL)	Volume of test inoculum (mL)	The log value of the number(cfu/cm^2) that bacteria recovered from the different contact time			The value of antimicrobial activity
			/	at "0h" contact time	at "15min" contact time	
Klebsiella pneumoniae ATCC 4352	9.4×10^5	0.2	Sample	/	2.04	2.0
			Control Sample	4.04	4.05	

REMARK: The control sample is plastic film without antimicrobial activity, provided by SGS laboratory.
Wet and heat sterilization

60 minutes after treating

Test Report **Report No: ASH16-007950-06** **Date: Mar 16 2016**

TEST METHOD(S):
Refer to ISO 22196:2011 Measurement of antibacterial activity on plastics and other non-porous surfaces

TEST ORGANISM(S):
Klebsiella pneumoniae ATCC 4352

TEST RESULT(S):

Test Organism(s)	Concentration of bacteria (cfu/mL)	Volume of test inoculum (mL)	The log value of the number(cfu/cm^2) that bacteria recovered from the different contact time			The value of antimicrobial activity
			/	at "0h" contact time	at "60min" contact time	
Klebsiella pneumoniae ATCC 4352	9.4×10^5	0.2	Sample	/	0.22	3.8
			Control Sample	4.04	4.04	

REMARK: The control sample is plastic film without antimicrobial activity, provided by SGS laboratory.
Wet and heat sterilization

RESYSTEN protective coatings

Registrations, listings

CAS No.	13463-67-7
TSCA (USA)	Registrated
USDA	Listed
U.S. FDA	Listed
U.S. Pharmacopeial Convention Catalog No.	1667585
U.S. Environmental Protection Agency	Listed

EINECS	236-675-5
1223/2009/EC (cosmetics)	comply
1333/2008/EC	comply
231/2012/EU (food colour)	comply
2009/35/EC (pharmaceuticals)	comply
96/335/EC (nomenclature cosmetics)	comply
DIN EN ISO 22000 : 2005 Food Safety System Certification (FSSC) 22000 : 2013	comply

RESYSTEN protective coatings

Our references

RESYSTEN
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