

GAS STATION

**Degassing, Cleaning and Lining
Technologies for Tanks,
Sumps and Pipes**



The Right Way To A Sustainable Gas Station

The durability of Wolftank Adisa systems grant important savings and the best possible total cost of ownership. A wide range of system solutions have been developed and certified according to national and international product standards.



Over 30 years of tracked installation records and trusted expertise

Wolftank Adisa products have been successfully installed in over 25.000 aboveground and underground tanks for several thousand clients all over the world.

WOLFTANK



adisa

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About Wolftank Adisa

Our Mission

We love our planet Earth. Our global mission for people and environment is to return water, air and soil to its original and healthy state.

Our Vision

We are recognized experts for a sustainable usage of environmental resources providing the most efficient technologies and tools to recover ecosystems.

CO₂ consumption of every investment is more and more in the focus of investors' attention. Especially construction works have a significant CO₂ impact. Tank lining compared to tank substitution has a significantly lower energy requirement. With innovative approaches we are even able to provide almost CO₂ neutral tank lining.



Dr. Ing. Peter M. Werth

CEO - Wolftank-Adisa Holding AG

Today there is no technical reason in project planning, construction, refurbishment or decommissioning of retail stations, fuel or chemical tank farms, to risk a leakage of potentially pollutant liquids. The economic, legal and ecologic advantage provided by our consequent redundant technology is obvious and more and more recognized by customers.



Dr. Markus Lechthaler MBA

CEO - Wolftank Adisa GmbH

The significant changes in the mobility and in the fuels which started in the last decade are expected to be accelerated in the next one. We see the demand of sealing, lining and double wall conversion solutions which can be installed safe, easily and anywhere in order to preserve the assets value and avoid expensive investments combined with losses of sales.

Your Partner For Decades



SAFE

Protect your investment & environment. Extend the equipment lifetime as long as possible.



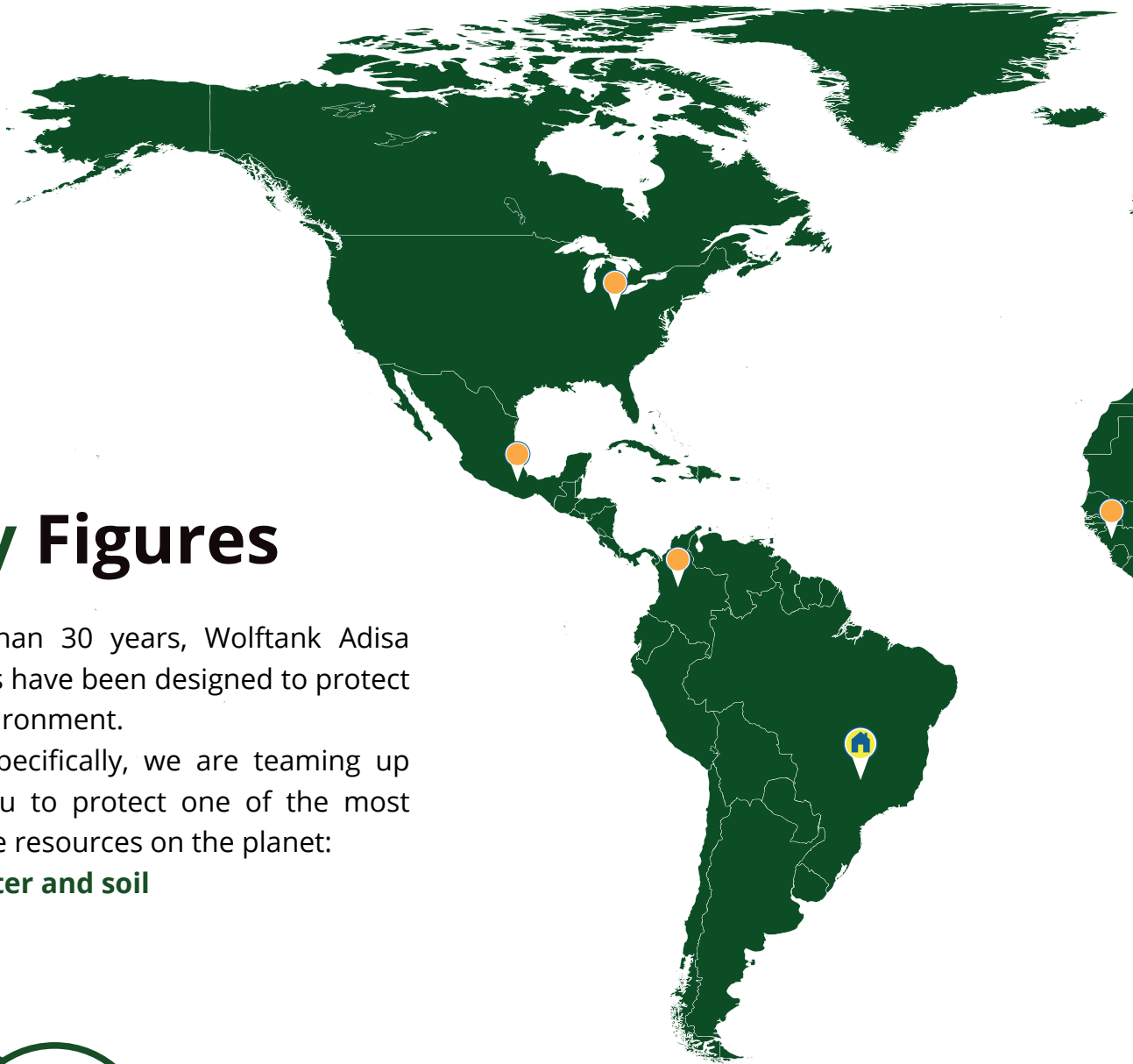
EFFECTIVE

Avoid leakages and loose products thus get affected financially and operationally.



COMPLIANT

Be compliant with local legislations, standards and best practices.



Key Figures

More than 30 years, Wolf tank Adisa systems have been designed to protect the environment.

More specifically, we are teaming up with you to protect one of the most valuable resources on the planet:

air, water and soil



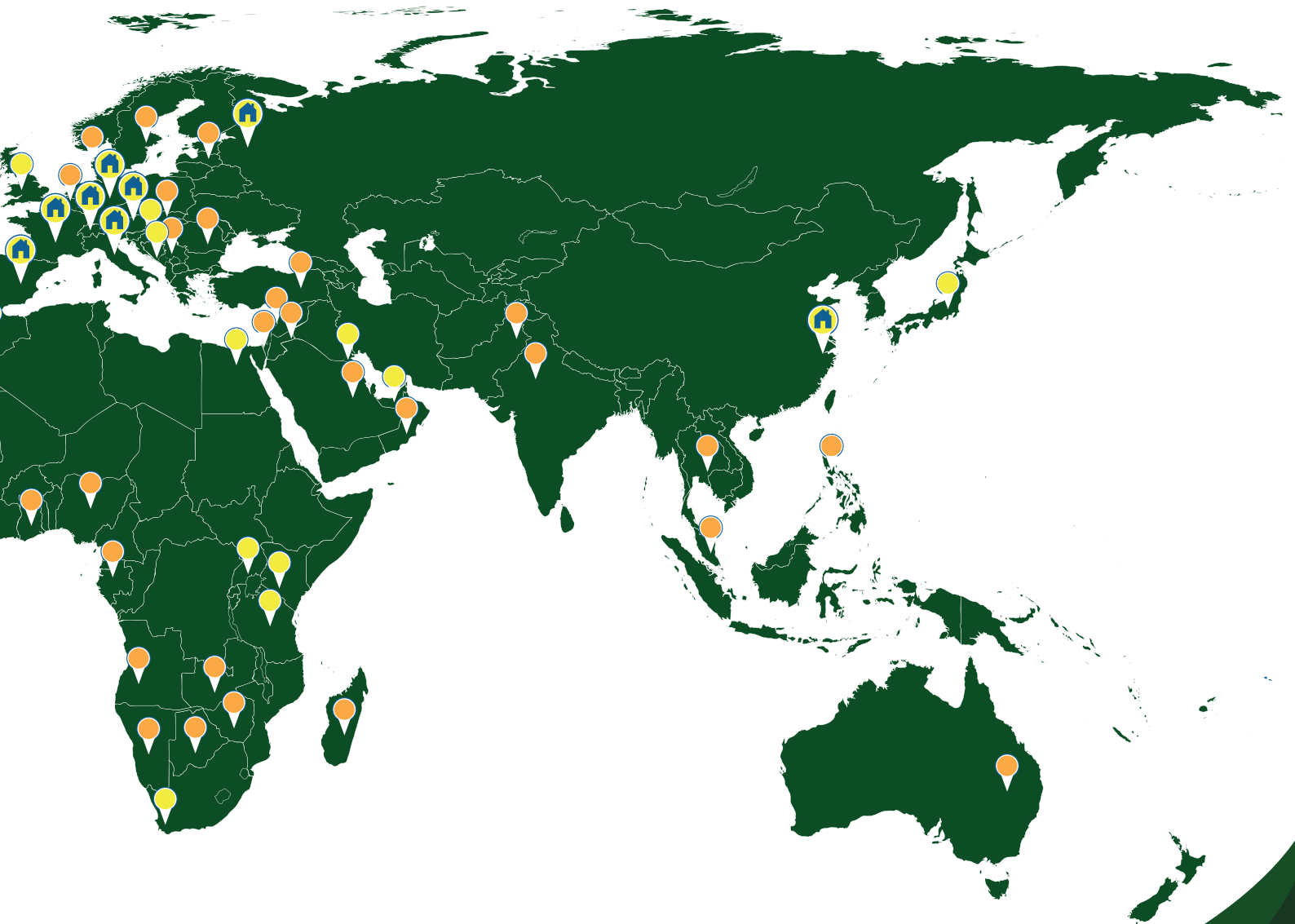
**More than 5M. m²
coating with
EPOFLEX[®] products**



**More than 1M.
m² refurbished to
double wall / floor
with the DOPA[®]
system**



**Operating in more
than 30 countries
across all conti-
nents**



**3,000 vacuum and
pressure leak
detection systems
(EN13160 Class 1)
installed**



**More than 11,000
satisfied customers**



**More than 30 years
of experience**

RESEARCH & DEVELOPMENT

The integrity of tanks, pipes, sumps and forecourt of retail fuel systems is essential to avoid soil and water pollution and fuel loss in gas stations. Wolf tank Adisa products are designed for field fabricated retrofits and refurbishments as entire linings, chemical protective coatings and batch reparation solutions. A safe operation of the plants is ensured by Wolf tank Adisa technologies for degassing and cleaning.

Worldwide Certified Solutions

The exceptional protection Wolf tank Adisa provides for their clients' assets is represented by the exclusive DOPA® registered trademark and embodied in the experience Wolf tank Adisa has accumulated since our first day of work, transforming storage facilities into double-walled tanks, complemented by remotely viewable continuous monitoring in order to ensure worldwide the same quality standards.



Globally compliant to local regulations and legislations

The focus of recent developments is on non flammable, solvent free materials making installation operation more safe. It requires less investment in protective equipment and lower costs in transport and storage in order to make global distribution more easy.

STAY COMPLIANT ALL OVER THE GLOBE

Training Center

As of today, Wolf tank Adisa instructed more than 100 companies located in Europe, Asia and Africa for the application of resins. In line with the approaches of quality management, Wolf tank Adisa trains technical people of customer as well as quality inspectors.



Technician ready to start his work

Trainings usually consist of:

- a theoretical part
- a practical part
- the supervision phase

Wolf tank Adisa offers support not only for the training, but also for the initial supervision period for the training.


Wolf tank Adisa's worldwide network of quality inspectors is continuously growing and regularly informed about best practice and news.

EXTRACT OF REFERENCE LIST

Final Customer	Lining Systems supplied to our Installation Partner	No. of Tanks	Project Completion
Total Italy	DOPA® Double Wall Conversion and Installation of Vacuum Leak Detection Systems in the Retail Net	> 1000	2018
EM Italy	DOPA® Double Wall Conversion and Installation of Vacuum Leak Detection Systems in the Retail Net	> 800	2017
ENI Italy, Austria & France	DOPA® Double Wall Conversion and Installation of Vacuum Leak Detection Systems in the Retail Net	>1500	2016
Total Africa	ADASYS & EPOFLEX® Structural Tank Lining in different African Countries	> 500	ongoing
Total China	DOPA® Double Wall Conversion of Underground Storage Tanks	> 50	ongoing
INA Group Croatia	ADAPOX® Structural Tank Reinforcement and DOPA® Double Wall Conversion	> 100	ongoing
BP United Kingdom	DOPA® Double Wall Conversion of Underground Storage Tanks	> 300	2013
Shell China	DOPA® Double Wall Conversion of Underground Storage Tanks	> 50	ongoing
Tamoil Italy	DOPA® Double Wall Conversion and Installation of Vacuum Leak Detection Systems in the Retail Net	> 800	ongoing
Sinopec China	DOPA® Double Wall Conversion and Installation of Vacuum Leak Detection Systems in the Retail Net	> 1500	ongoing

Single and double wall tank lining in 3 days

DOPA® systems help you achieve bringing sensible financial and risk savings while keeping your operations smooth and safe.




i Double wall tank installation with DOPA® 6n

No loss of sales by ensuring business continuity

The durability of Wolftank Adisa systems grants to our customers important savings and the best possible total cost of ownership. A wide range of system solutions have to be developed and certified according to national and international standards.

Safe degassing & cleaning without manhole opening

Traditional cleaning via Man-Entry is among the procedures with highest HSE exposure. As an improvement to this procedure, Wolftank Adisa developed degassing & cleaning technologies even able to avoid opening the manhole.

 Surface preparation with TCR® Rust Converter

No sand blasting or special equipment required

Wolftank Adisa's surface preparation is among the safest, fastest and cost-effective solutions to treat a corroded surface. No special equipment is necessary and even waste or residuals are completely avoided.

Safe Tank Lining Accessible Anywhere

The changes gas stations are facing in times of new energy sources, aging assets and aggressive fuel corrosive require innovative solutions to preserve the value of the assets. Wolf tank Adisa has focused to provide smart solution in order to repair and line tanks, pipes and sumps accessible for anybody in any country and without interrupting the stations operation to make a sustainable investment.

Over decades the fuels for mobility did not change significantly and consisted basically in diesel and gasoline. Recent tendencies lead to two main new challenges: different energy sources such as electric energy, LNG and hydrogen and bio additives to the existing fuels. Both are challenges which the existing facilities need to be made read for in order to keep competitive. As many gas stations are aging, this is an additional challenge requiring smart investments to preserve the asset values.

Rehabilitate instead of rebuild in times of decreasing fuel consumption.

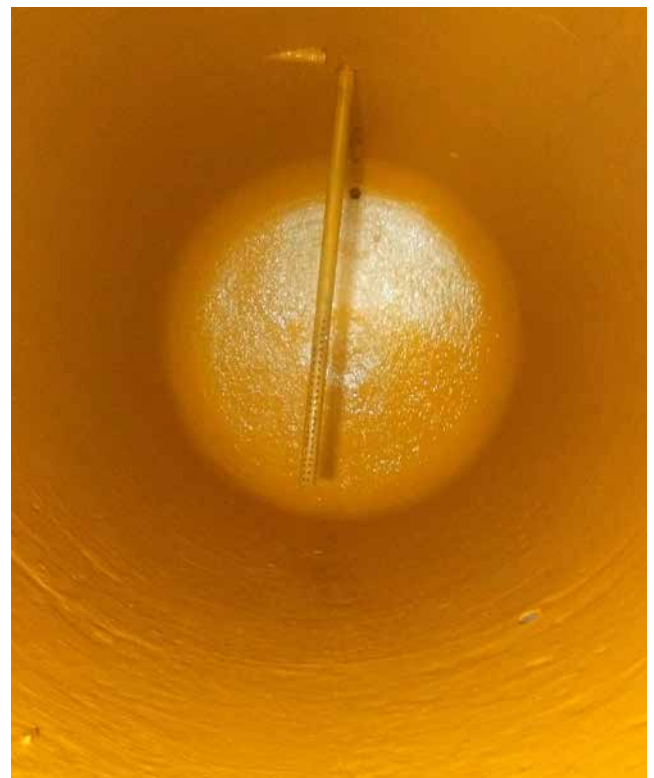
The new energy mix and the improved engine technologies lead to an overall decrease of the consumption of diesel and gasoline. However, the demand to preserve the tanks, sumps and pipes against aging and corrosion keeps unchanged. While the main reason for tank substitution in past is the requirement to increase the storage capacity, today the main challenge is to preserve the existing asset to keep it profitable despite and during the



Corroded tank surface before Wolf tank Adisa operation

This is achieved by structural lining and double wall conversion solutions which can be

installed without or with a minimum affect on the business continuity working at open stations. The available technologies of structural tank lining are able to provide even a longer second life time to the tanks than the average lifetime of newly installed tanks.



Rehabilitated tank surface after Wolf tank Adisa operation

The second main challenge the station owner of underground tanks are facing is the introduction of biofuels. Biofuels behave significantly more corrosive to the steel and fiberglass tanks than traditional fuels.

Make the tanks ready for long term storage of biofuels.

Tank and sump lining technologies can repair pit corrosions and preserve tanks against a future corrosive aggression which can lead to spills for single wall tanks and interstice integrity alarms for double wall tanks within shortest times. Lining materials have been specially designed to be solvent free, non-flammable and on long term resistant to aggressive biofuels including pure ethanol.

Especially the recent developments of environmental friendly, solvent free lining materials allowed to make safe tank lining accessible for anybody. While traditionally only companies available to invest in expensive equipment and having big continuous campaigns were able to provide safe tank lining, now the safe and efficient technologies can also be provided to companies and countries with small retail nets. The mentioned technological transitions need to be solved everywhere, in more than 200 countries of the world!

Product Index



Tank and Sump Access

TCR® Degassing

TCR® 6/7 - Tank Cleaning

TCR® 15 - Tank Cleaning

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Wolftank Adisa solutions making sump and tank access more safe.



Simplified Methods

DOPA® Lite - Double Wall Conversion

EPOFLEX® - Tank Lamination

EPOFLEX® DOM - Sump Lining

EPOFLEX® DOM - Sump Sealing

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Wolftank Adisa simplified installation methods particularly competitive for small Campaigns (e.g. up to 30 tanks/year).



High End Methods

DOPA® 6n - Double Wall Conversion

EPOFLEX® 6n - Tank Lining

ADAPOX® DSF - GRP Tank Lining

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Wolftank Adisa traditional installation methods developed for companies with tank lining as core business.

TCR[®] Degassing

Atomization of hydrocarbon encapsulating liquid to lower the presence of explosive gases as an advanced degassing solution for tanks and sumps without manhole opening and entrance into confined spaces.



**NO
MANHOLE
OPENING
NECESSARY**

**READY-TO-
USE LIQUID**

**QUICK &
EASY TO
IMPLEMENT**

TCR[®] Atomizing Agent application 

Simplified Schematic Method of Statement

Prestatus:
• Safe Sump Access

1
Empty tank through flange

2
Introduce TCR[®] Atomizing Agent

3
Measure explosive level

Key Equipment

1. Atomization Unit
2. Tools to disconnect flange
3. Explosimeter

Result:

Temporarily degassed and more safe atmosphere

TCR[®] 6/7 - Tank Cleaning

Advanced technology for washing, degreasing and degassing which can be applied without opening the manhole.



APPLICABLE THROUGH 4" FLANGE

EX ZONE 0 APPROVED

NO-MAN-ENTRY CLEANING

i TCR[®] 6 washing unit



i TCR[®] 7 suction unit

i TCR[®] 6/7 applied through the 4" flange

Simplified Schematic Method of Statement

Prestatus:
• Safe Sump Access

1
Empty tank through flange

2
Pressure wash tank (TCR[®]6)

3
Suck water and post wash (TCR[®]7)

Key Equipment

1. TCR[®] 6 washing unit
2. TCR[®] 7 suction unit
3. Cleaning truck or other suction systems
4. Tools to disconnect flange
5. Explosimeter

Result:

Degassed and degreased tank

TCR[®] 15 - Tank Cleaning

High performance automatized washing, degreasing and degassing technology with optimized water consumption and robotic remote control of the process.



CAMERA CONTROL AVAILABLE

EX ZONE 0 APPROVED

FOR TANK DIAMETERS UP TO 3M

TCR[®] 15 robot 

Simplified Schematic Method of Statement

Prestatus:
• Safe Sump Access

1
Empty tank through flange

2
Open Manhole

3
Introduce TCR[®] Atomizing Agent (optional)

4
Wash and suck with TCR[®] 15

Key Equipment

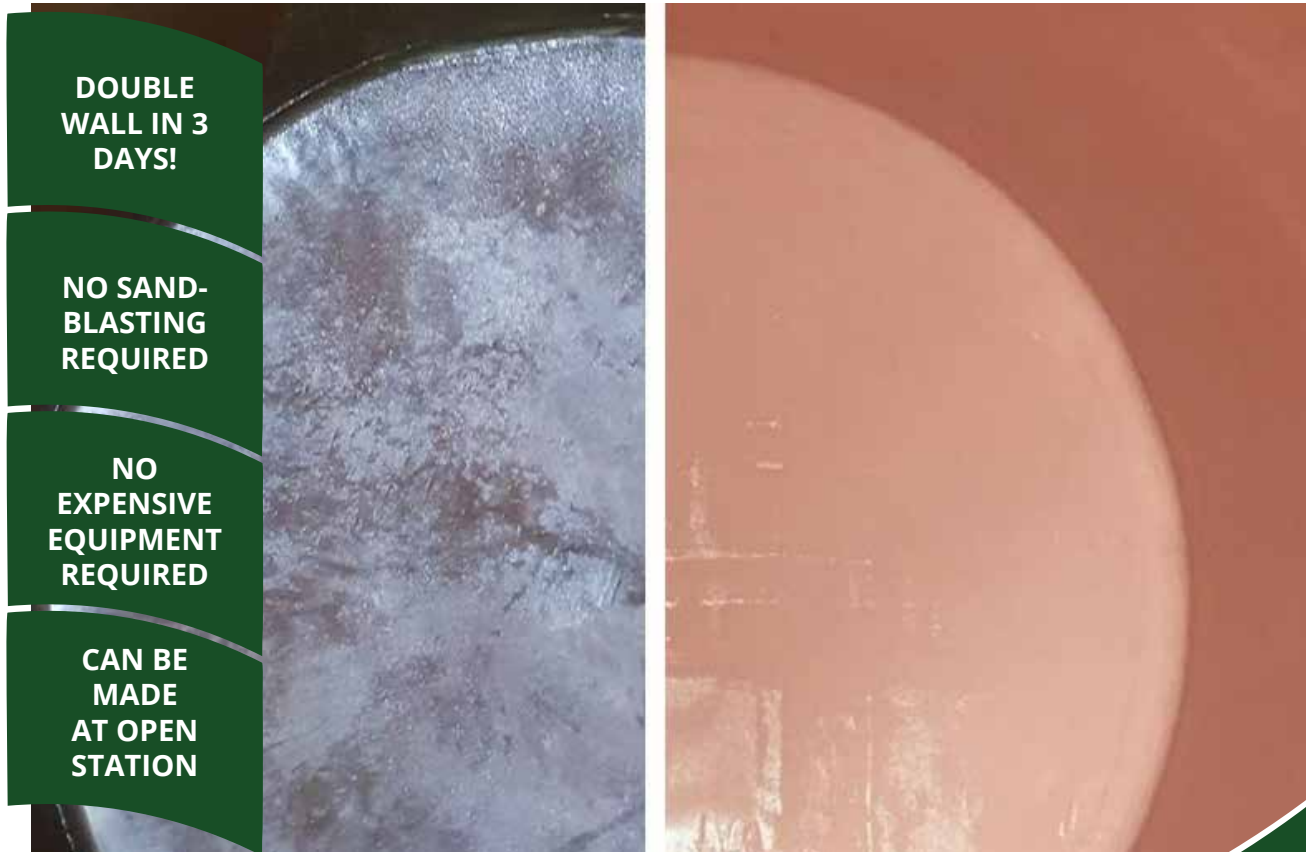
1. TCR[®] 15 robot
2. Cleaning truck or other suction systems
3. Tools to disconnect flange
4. Explosimeter
5. Atomizing Equipment
(only if degassing made before manhole opening)

Result:

Degassed and degreased tank

DOPA® Lite - Double Wall Conversion

The most easy way to make a double wall conversion with vacuum interstice monitoring without investment in expensive equipment and without any hot works and flammable materials.



i DOPA® Lite before (left) and after (right) application example

Simplified Schematic Method of Statement

Prestatus:
• Degassed
• Degreased

1
Apply primer

2
Create interstitial space

3
Apply GRP reinforcement

4
Apply top layer

5
Apply antistatic layer

Result:
Rehabilitated 24/7 vacuum monitored double wall tank

Key Equipment

1. Laminate application tools
2. Tank entry equipment
3. Tank ventilation equipment
4. Quality control equipment
5. Vacuum pump
6. Spray unit
(only recommended if processed more than 30 tanks per year)

EPOFLEX® - Tank Lamination

The most easy way to line a severely corroded tank without investment in expensive equipment and without any hot works and flammable materials.



Applied EPOFLEX® tank lining in an underground storage tank **i**

Simplified Schematic Method of Statement

- Prestatus:
- Degassed
 - Degreased

1
Convert rust
(TCR® Rust Converter)

2
Apply Glass Fiber Laminate

3
Roll top layer

4
Apply anti-static layer (optional)

Key Equipment

1. Laminate application tools
2. Tank entry equipment
3. Tank ventilation equipment
4. Quality control equipment
5. Spray unit
(only recommended if processed more than 30 tanks per year)

Result:

Structurally reinforced tank with second lifetime

EPOFLEX® DOM - Sump Sealing

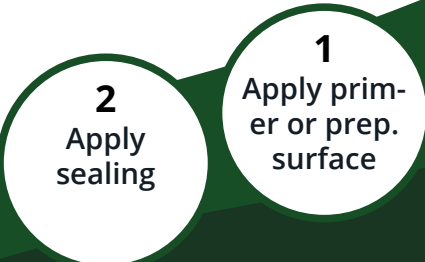
The quick way to stop water entrance in case of any local crack, hole or similar damage.



- NO INTERRUPTION OF TANK OPERATION
- NO NEED OF SPECIALIZED INSTALLER
- ONLY FEW HOURS REQUIRED

i EPOFLEX® DOM sealing applied and restored basic functionality

Simplified Schematic Method of Statement



Prestatus:
• Degassed
• Degreased

Key Equipment

- 1. Rubber spatula

Result:
Rehabilitated basic functionality of the sump

EPOFLEX® DOM - Sump Lining

The approved way to line the sump structurally in order to avoid water entrance and soil contamination through the sump by rehabilitating the functionality of a tank in case of any local crack, hole or similar damage.




NO
INTERRUPTION
OF TANK
OPERATION

NO
EXPENSIVE
EQUIPMENT
REQUIRED

ONLY
1-2 DAYS
REQUIRED

APPLICABLE
FOR STEEL,
CONCRETE
AND FRP

Structurally lined sump with EPOFLEX® DOM 

Simplified Schematic Method of Statement

- Prestatus:
- Degassed
 - Degreased

1
Apply primer or prep. surface

2
Levelling & corner radius

3
Apply GRP reinforcement antistatic lining

Key Equipment

1. Sump lamination tools
2. Sump ventilation equipment
3. Surface preparation equipment

Result:

Structurally FRP reinforced rehabilitated sump

DOPA® 6n - Double Wall Conversion

The most advanced solution with longer average lifetime than new tanks. Double wall conversion with vacuum interstice monitoring gaining highest possible lifetime extension without hot works and flammable tank lining materials required.



- LIFETIME EXTENSION UP TO 30 YEARS
- NO SITE INTERRUPTION
- RESISTANT TO ALL ETHANOL GRADES
- MAKES TANK SUBSTITUTION UNNECESSARY

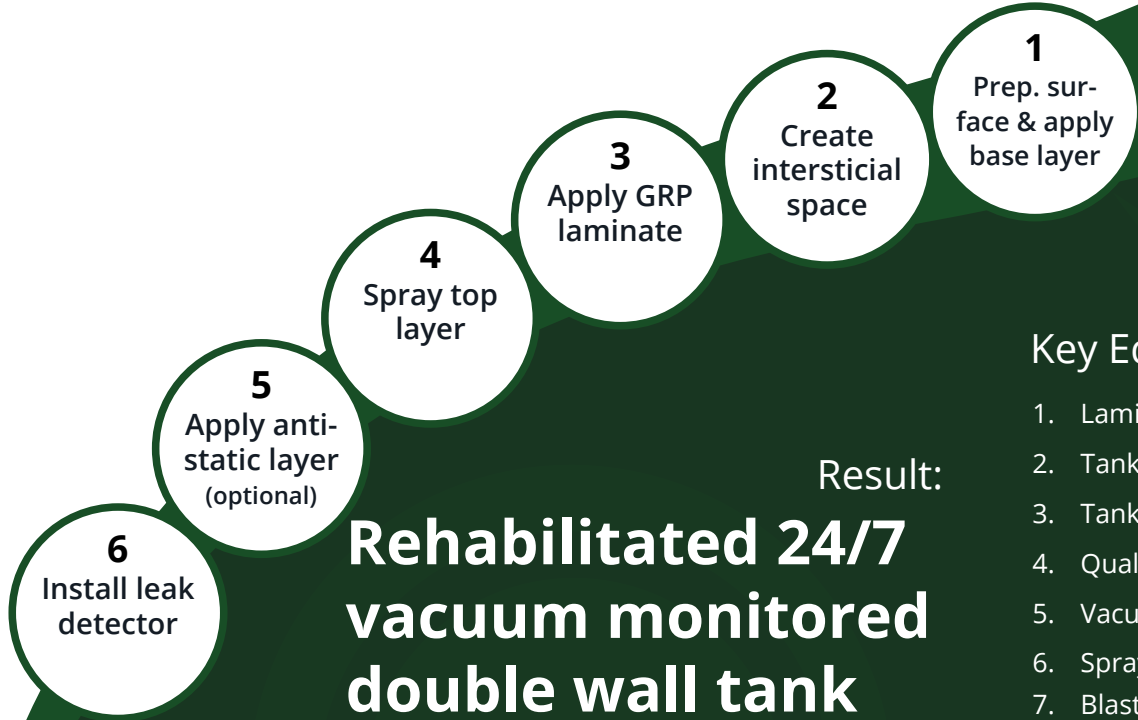


GRP Lamination

i DOPA® 6n applied in an underdrond storage tank with antistatic layer

Simplified Schematic Method of Statement

- Prestatus:
- Degassed
 - Degreased



Result:
Rehabilitated 24/7 vacuum monitored double wall tank

Key Equipment

1. Laminate application tools
2. Tank entry equipment
3. Tank ventilation equipment
4. Quality control equipment
5. Vacuum pump
6. Spray unit
7. Blasting equipment
(only used for the traditional method)

EPOFLEX® - Tank Lining

The approved way to protect the tank against future corrosion in order to keep the storage safe for modern aggressive fuels. Furthermore spills and soil pollution are avoided.



Reinforced tank completely protected with EPOFLEX® tank lining **i**

Simplified Schematic Method of Statement

- Prestatus:
- Degassed
 - Degreased

1
Prepare surface

2
Spray layer

3
Apply anti-static layer (optional)

Key Equipment

1. Tank entry equipment
2. Tank ventilation equipment
3. Quality control equipment
4. Spray unit
5. Blasting equipment
(only used for the traditional method)

Result:

Protected tank with second lifetime

ADAPOX® DSF - GRP Tank Lining

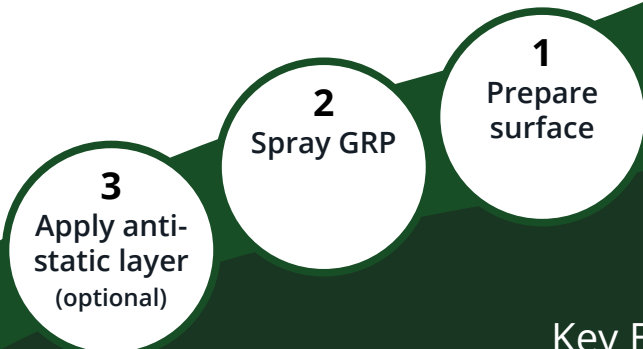
The thickest and strongest glass fiber reinforcement for tanks with serious structure issues.



i ADAPOX® DSF applied in an underground storage tank with antistatic top layer

Simplified Schematic Method of Statement

- Prestatus:
- Degassed
 - Degreased



Key Equipment

1. Tank entry equipment
2. Tank ventilation equipment
3. Quality control equipment
4. Spray unit
5. Blasting equipment
(only used for the traditional method)

Result:

FRP reinforced tank wall

INTERVIEW WITH Dr. Matteo Ciarapica

Group Sales Director

* Interview excerpt from Oil & Gas Technology Magazine



How does continuous monitoring protect your investment in storage capacity?

Oil & Gas Technology: Why is the tank an asset to be maintained?

Matteo Ciarapica: The construction of a new storage tank is a high investment in an asset that, over the entire lifecycle, is exposed to harsh conditions such as environmental influence and storage of chemically aggressive goods. The operation of a storage tank therefore requires periodic maintenance to avoid steel corrosion, product loss as well as safety and environmental risks.

OGT: What does the 24/7 monitoring consist of?

Matteo Ciarapica: In order to enable the launch of a leak detection system it is necessary to have a tank with an interstitial surveillance space created by a double wall. We have developed a system to install a second wall that we call DOPA®. The interstice we connect to a local or remote leak detection system that identifies variations by registering the surveillance pressure. The system analyses these variations automatically and allows the preview of deviations from the default operative conditions, such as a loss of the interstice monitoring pressure, and can even identify manipulation of the system.

OGT: Which tank types can be transformed or retrofitted?

Matteo Ciarapica: Any atmospheric or underground storage tank, any steel or concrete tank, either new or in use, examples go from of 5m³ up to of 100m in diameter. Generally, it can be applied on the entire tank surface. However, the most corrosion affected part in above ground flatbottomed tanks is the bottom itself. As this area can normally not be inspected visually during operation without emptying the tank, DOPA® enables its constant monitoring. In case of underground tanks, such as tanks at petrol stations, the European standard require a 360° double wall installation.



OGT: Can the double wall DOPA® system only be installed in new tanks?


Matteo Ciarapica: No, it can also be applied in older tanks later in the lifecycle. The installation requires only a few weeks of downtime, thus the process can be carried out in combination with a scheduled standard maintenance.




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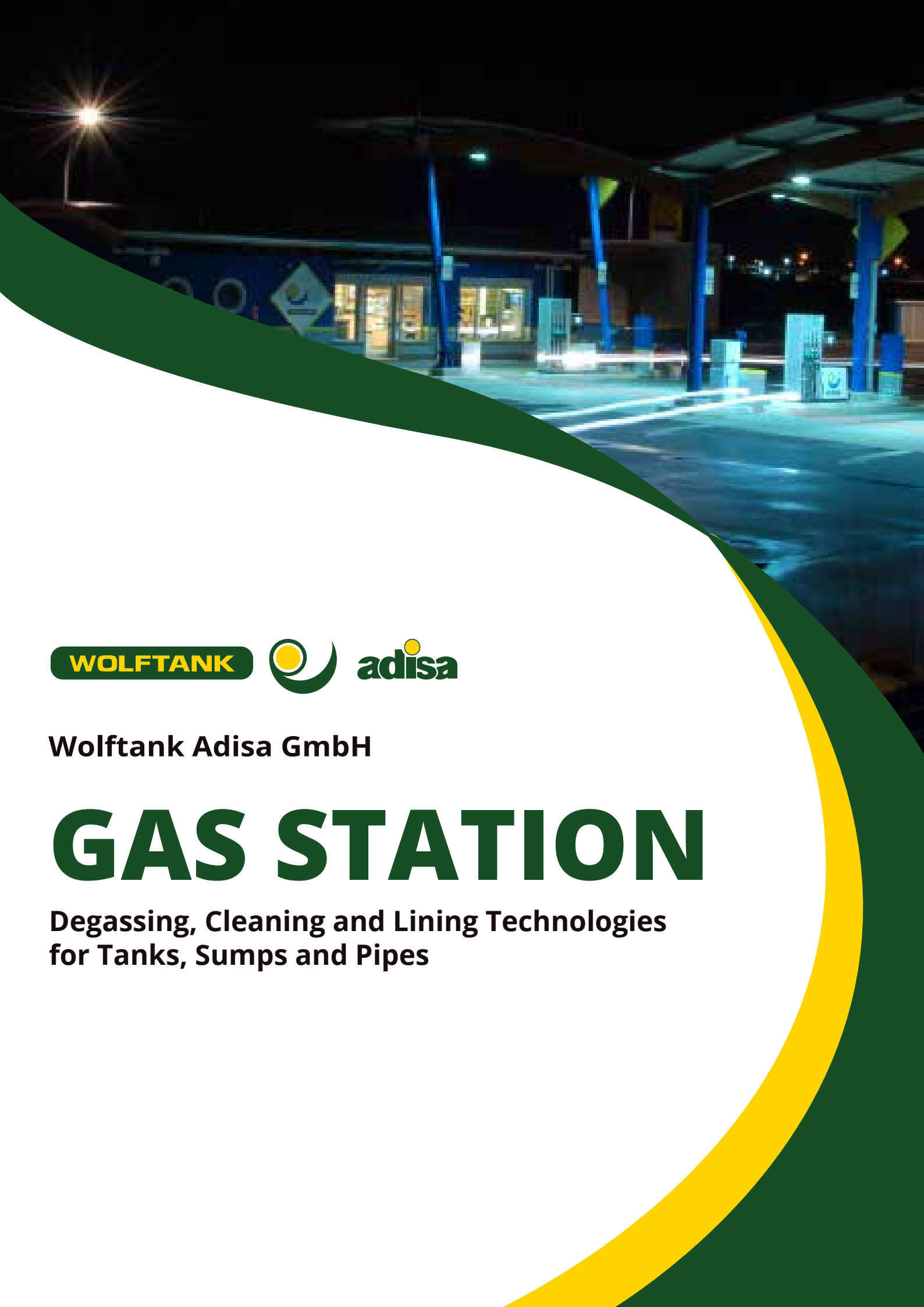
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