



uni-recycling

INDUSTRIAL SERVICES AND MAINTENANCE

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GLOBAL INDUSTRY SERVICE

Our team's industry experience, market insights and appreciation of the specific challenges facing individual sectors mean we are always working to ensure our clients needs.

Uni-Recycling provides services for following industry sectors:

- Refineries
- Petro Chemical Industries
- Chemical Industries
- Power Plants
- Food Industries
- Oil and Gas Industry
- Tank farms/storages
- Pipeline Provider



WHY UNI-RECYCLING?

For the environment, future generations and the world we all live in!

Registered at **25 United Nations organizations** and **NATO** and service provider to European Union.



Top Quality Assurance
Fully compliant with international laws
and environmental regulations.

UNI-RECYCLING AT A GLANCE

- Turnkey Projects
- German Engineering Practices
- Consultancy
- Environmental Services
- Environmental Solutions
- Training Courses
- Environmental Studies

Founded in 2005, Uni-Recycling, a German-Romanian group of Companies, rapidly grew to become an internationally recognized environmental Service provider gaining clients' trust by successful implementation of a wide variety of projects, especially in the field of environmental protection in several regions.

MISSION & VISION

Our Vision

The focus is on optimizing costs and increasing productivity for mutual benefit.

Our Mission

To offer a full portfolio of clean technologies and sustainable industrial services to customers in various industries around the world, enabled by our process knowledge, extensive experience and cutting-edge technologies.



*Our VALUES defines
Uni-recycling's road to
innovation and growth for the
years to come.*



It is our company's global vision, that we apply to our daily work.

Our FOCUS defines who we are and what we strive for, how we work together and what we want to achieve.

INDUSTRIAL CLEANING

Reduced process efficiency brings about energy loss. Uni-Recycling's cleaning division has developed effective and reliable mechanisms to not only save more energy but also reduce downtime, increase process efficiency and reduce overhaul costs, as:

- **High-pressure cleaning** of heat exchangers, air coolers, pipes and all other industrial equipment **using combi jetting and vacuum trucks, high pressure pumps** and **highly-qualified personnel** with plant-specific know-how;
- Preventive maintenance planning;
- Plant inspections, status analyses and feasibility studies;
- Disposal/recovery of the generated waste in industrial cleaning processes;
- Training sessions;
- Emergency Services 24/7.



HEAT EXCHANGER & AIR COOLER SERVICES (1)

Uni-Recycling provides a myriad of industrial exchanger services:

- Manufacture of complete heat exchangers and air coolers;
- Engineering;
- Planning;
- Expansion;
- Bundle pulling;
- Transport;
- Cleaning;
- Repair / RE-Tubing;
- Inspection;
- Reassembly;
- Pressure test.



We use bundle extractors to eliminate the risk of damage.



Inside and outside high pressure cleaning of bundles with proper equipment in the least possible time.



Preferably the cleaning process is performed by automatic devices using special nozzles, achieving a high rate of productivity and safety for the operators. Depending on the Situation, cleaning operations can be performed in-situ by using modular, portable, safe and easy to assemble modules.

HEAT EXCHANGER & AIR COOLER SERVICES (2)

a) CLEANING SERVICES



Cleaning of inside bundles and outside finned pipes. The cleaning system is easily adapted on the finned tubes surface by using special design coupling devices.



The cleaning operations are performed in-situ by using modular, portable, safe and easy to assemble modules.



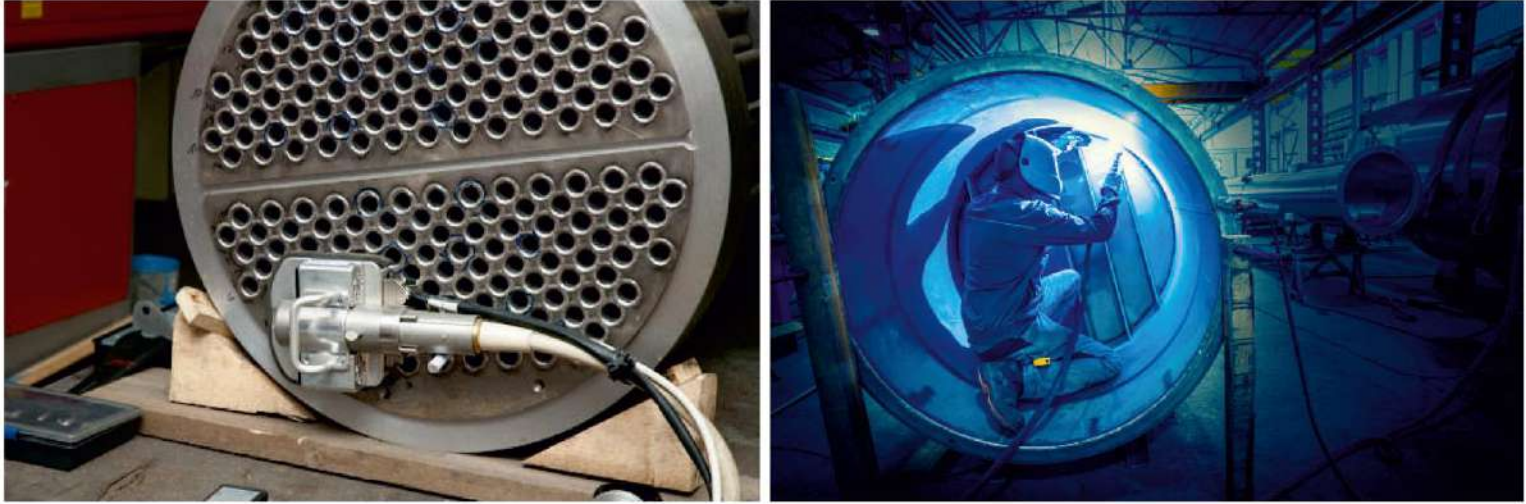
Uni-Recycling offers the right technology for all applications. Highest safety standards performed with automatic cleaning systems.



Cleaning services in line with environmental protection measures and safety regulations

HEAT EXCHANGER & AIR COOLER SERVICES (3)

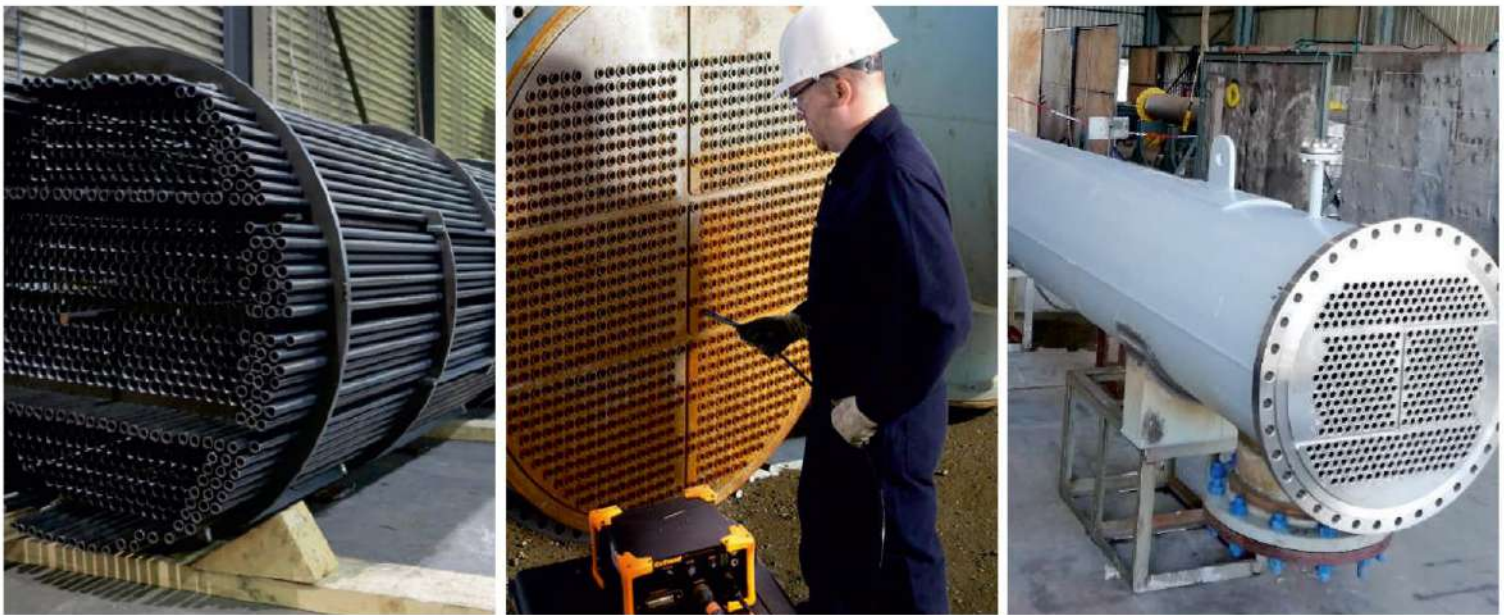
b) RE-TUBING & MAINTENANCE SERVICES



Heat exchanger re-tube works are especially important subject for big industrial plants such as:

- Oil refineries;
- Petrochemical industry;
- Power plants;
- Other Chemical Industries for equipment like Shell and tube heat exchangers, condensers, feed water heaters, etc.

It is generally a more economic option comparing with new equipment fabrication, but however this works needs expertise and special equipment.



If the condition of the tubes/ finned tubes has significantly degraded due to overheating or excessive corrosion, re-tubing the bundle with an equivalent or higher-grade type tubes can be required to increase the life of the equipment and optimize the working performance.

SHUT DOWN MANAGEMENT

By implementing a shutdown and maintenance plan for overhauling of existent equipment it will bring a process maximization and cost minimization to the entire refining process.

Uni-recycling provides comprehensive petrochemical and refinery turnaround services. We specialize in project management, execution, planning and scheduling.

We deliver the full spectrum of services required for safe and successful turnarounds, shutdowns and emergency outages in the chemical, petrochemical, power, refining, and pulp & paper industries.

Engineering

Planning

Safety &
Environmental
Service

Supervision

Services and
Operation



A few of our main foreground points include:

- A focus on safety;
- Careful planning;
- Clear communication;
- Dedicated project management;
- Employing highly skilled workers and craftsmen;
- Strong budgeting and cost monitoring services.

STORAGE TANK SERVICES (1)

FULL RANGE OF DEDICATED SERVICES:

✓ *Engineering & Planning & Scheduling*



✓ *Degassing Systems*



Mobile combustion chamber

✓ *Manual, Semi-Automatic and Automatic cleaning by using customised systems for each project*



✓ *Decanter Technology*



Water



Solid



Oil

With our mobile installations, we ensure the separation of the sludge in three phases: oil, water and solid and we secure the highest recovery rates.

✓ *Maintenance*



STORAGE TANK SERVICES (2)

YOUR BENEFITS WITH OUR CUSTOMISED TANK CLEANING SYSTEMS

- Shorter cleaning duration compared to conventional manual tank cleaning;
- Minimization of HC- Emissions – Closed Systems and Degassing;
- High HC Recovery Rate up to 98 % - return of valuable inventory;
- „Win-Win“: Minimization of sludge deposits and very low disposal costs;
- Tank Cleaning in EX zones.



Highest Safety Standards for personnel and environment – „Non-Man-Entry“

Regular, scheduled tank cleaning services are a best-practice behaviour because it improves safety, productivity and compliance, while extending the life of the asset.

CHEMICAL CLEANING (1)

ONE OF THE UNI-RECYCLING GROUP'S SERVICE AREAS IS TECHNICAL CHEMICAL CLEANING

PRE-OPERATIONAL

- Engineering
- Specialist chemical supply
- Pre-operational chemical analysis and tests
- Coordination of waste management

OPERATIONAL

- Degreasing Pickling Passivation
- Neutralization
- Hydrocarbon Decontamination
- Soda Blasting
- Air Drying

CHEMICAL CLEANING (2)

Areas of application

Columns

Desalter

Tanks

Vessels

Heat exchangers

Condenser

Compressor

Oxygen System

Piping

Process Lines

Main Units:

- FCC
- Crude Oil
- Vacuum
- Amine Regeneration
- HF Alkylation

ENGINEERING CATALYST HANDLING (1)

Our services on processing plants:

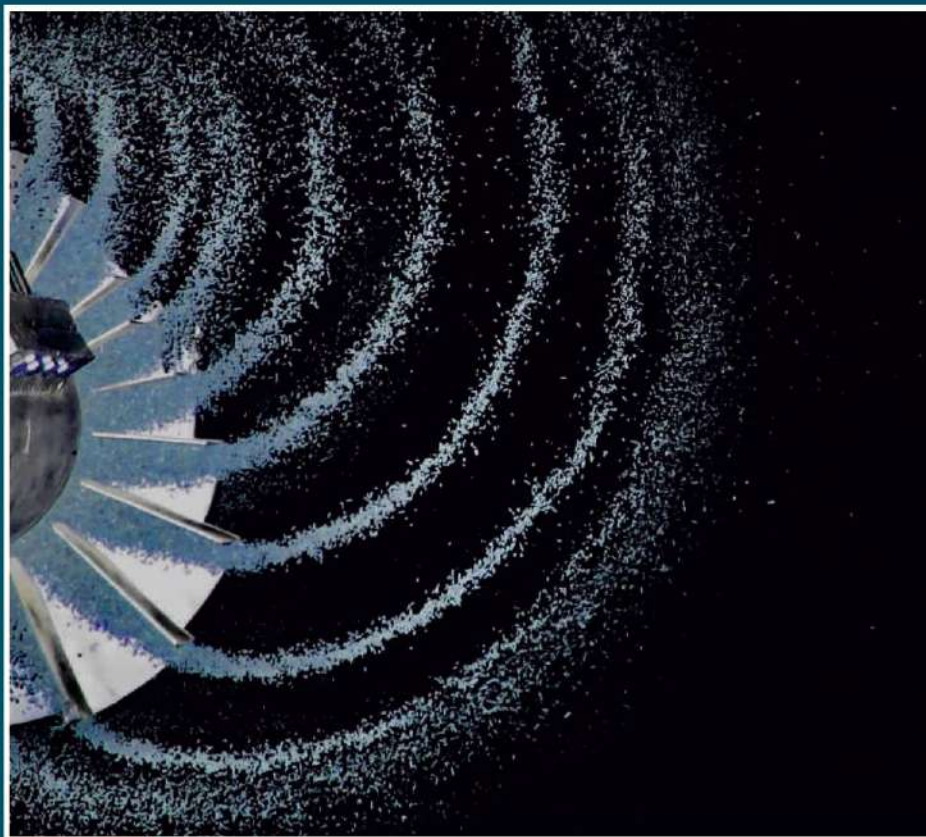
- unloading and loading of different types of vessels (reactors, converters, reformers, tubular reactors, adsorbers, cold boxes etc.);
- handling of different types of products (catalysts, molecular sieves, activated carbon, perlite etc.);
- assembly and disassembly of internals in all types of vessels;
- neutralisation of vessels using soda ash and tank wash head equipment;
- inspection under N₂ atmosphere with certified Life Support System (LSS);
- supervision of catalyst handling activities.



ENGINEERING CATALYST HANDLING (2)

Catalyst unloading methods:

- Unloading by gravity (dumping);
- Unloading by vacuuming with or without N₂ recirculation;
- Low attrition vacuuming by use of our hopper with soft;
- Flowing characteristics.



Catalyst unloading methods:

- Dense Loading (UOP, DENSICATR, CALYDENS, Linde, Catapac™);
- Sock Loading;
- Multi-Channel-Loading (tubular reactors);
- Orifice Loading (tubular reactors).

THE UNI-RECYCLING DIFFERENCE

Safety



Safety Comes First

Environment



*Environmental Compliance.
Waste minimization and recycling*

Management



Project management.

Reliability



*Measured Performance.
Predictable Results*

Innovative



*Innovative Options.
Thinking outside of the box.*



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