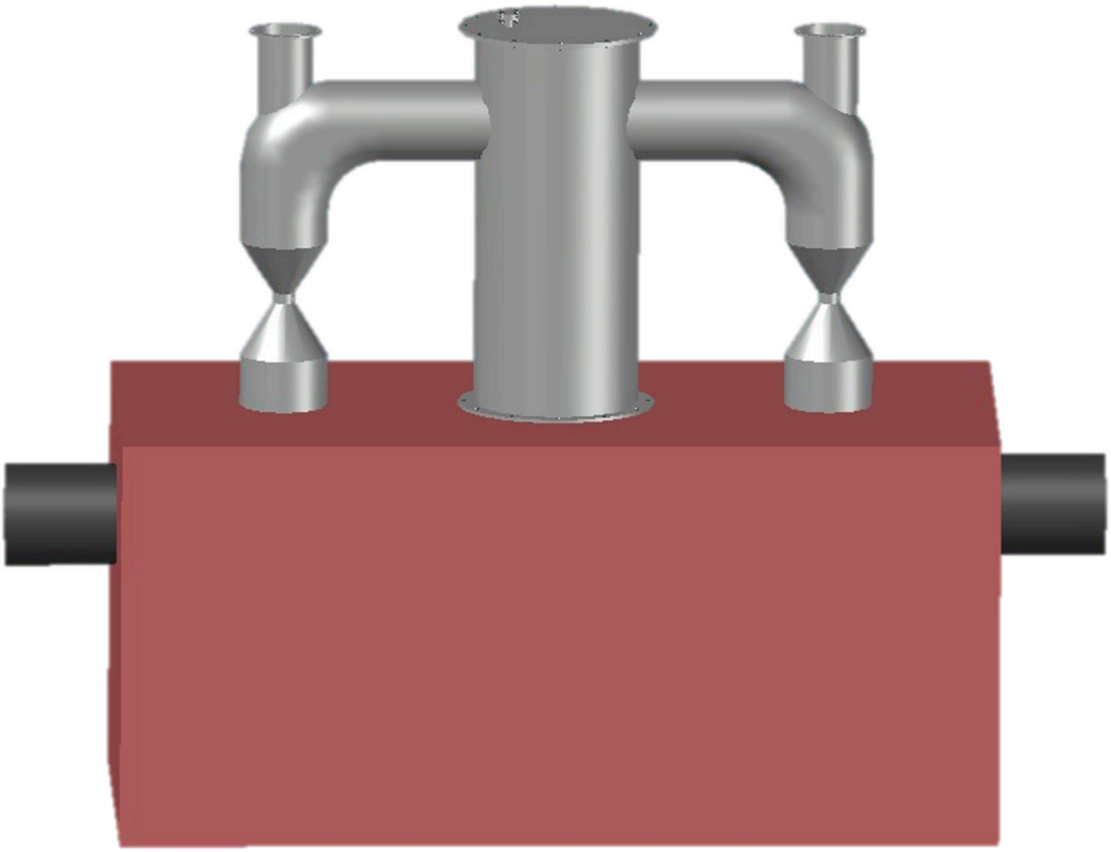
ENDEMIC
— process engineering —



NEUTRAJET®XY

FLUE GAS NEUTRALIZATION SYSTEM

THE MOST ECONOMICAL WASTEWATER NEUTRALIZATION METHOD

TECHNICAL SPECIFICATIONS

NEUTRAJET®XY NEUTRALIZATION OF WASTEWATER WITH FLUE GAS

As is known, classical methods for the neutralization of alkaline wastewater involve the use of acids such as HCl, H_2SO_4, or CO_2 gas. Neutralizing wastewater using these methods leads to very high costs for acids or carbon dioxide.

However, when the high pH problem is solved using the modern and simple method of FLUE GAS for WASTEWATER NEUTRALIZATION, much more economical operating costs - around 10% of those of classical methods - are achieved.

Developed by **ÇEVTAŞ** R&D Engineers, the highly economical, rational, simple, and modern **NEUTRAJET®XY flue gas-based wastewater neutralization** system provides operating savings of **80-85%** compared to other acid neutralization chemicals.

The neutralization method for alkaline wastewater is performed without any acid consumption, utilizing the CO2 present in flue gases for the neutralization process.

The alkaline parameter of the wastewater is expressed as equivalent NaOH, and the process equation is as follows:

$$2NaOH + CO_2 + H_2O \rightarrow Na_2CO_3 \quad (pH: 11)$$
$$Na_2CO_3 + CO_2 + H_2O \rightarrow 2NaHCO_3 \quad (pH: 8)$$

The flue gases are transferred to the **Neutrajet®** wastewater turbulence reactor using a special method. In this reactor, the high-pH wastewater undergoes the redox reactions mentioned above and is brought to pH levels of 6-9. Additionally, the SOx and particulates present in the flue gases entering the **Neutrajet®** turbulence reactor are removed, and the cleaned flue gases are released into the atmosphere in compliance with emission standards.

Due to the above processes, the **Neutrajet®** reactor unit functions as a **dual-effect** system. In this unit, both wastewater neutralization and flue gas cleaning are performed simultaneously. As a result of this dual effect, **Neutrajet®** provides significant economic benefits to operations.

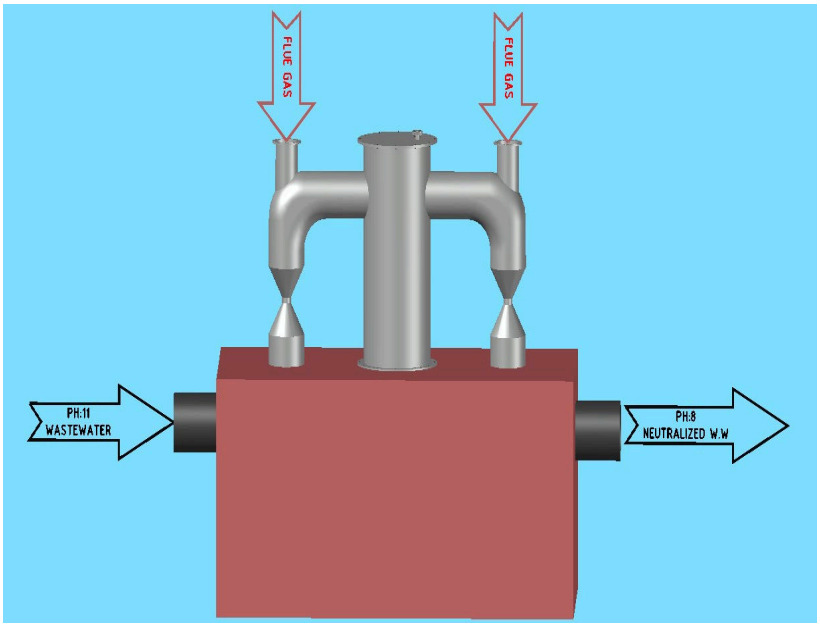
ISO 9001:2015 ISO 14001:2015

ISO 45001:2018

Design and calculations are tailored individually for each factory based on operational data, following a custom-made approach.

Endemic holds ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 10002:2018 and CE certifications as one of its additional steps in providing its customers with the best customer support and a high-quality product. **Neutrajet®** is delivered in accordance with the EC Machinery Directive and welded according to European standards.

NEUTRAJET® XY- Neutralization of Wastewater with Flue Gas



"HEAVY DUTY" DESIGN

NEUTRAJET®XY is specifically used for the neutralization of high-alkalinity wastewater in the textile industry. For corrosive environments, venturi jet units are selected to be suitable for heavy operating conditions.

Neutrajet®XY venturi jet units are made from AISI304 or AISI316L material. The turbulence reactor can be manufactured with a reinforced concrete structure or existing wastewater equalization tanks can be used as turbulence reactors.

DUAL-EFFECT PERFORMANCE

The dual effect of wastewater neutralization and the removal of particulates and SOx from flue gases provides significant economic benefits to operations.

During wastewater neutralization, all flue gases from the facilities can be directed to the **Neutrajet®XY** unit and turbulence reactor, and it can also operate similarly to a DESOX de-sulfurization system.

APPLICATION FEATURES IN EXISTING FACILITIES

Neutrajet®XY allows for wastewater neutralization and flue gas cleaning processes to be carried out without disrupting plant operations, by utilizing the existing equalization tanks in wastewater treatment facilities as turbulence reactors.

TYPICAL APPLICATION AREAS

- In the reuse of wastewater,
- In the treatment of industrial process water,
- In textile factories,
- In all industries with sufficient flue gas and alkaline wastewater.

NEUTRAJET® XY- CERTIFICATES

CERTIFICATE

ENDEMİC FİTO FARMA BİYOTEKNOLOJİ SAN. VE TİC. A.Ş.

DUDULLU OSB MAH. DES-110 SOK. NO:42 ÜMRANİYE / İSTANBUL / TÜRKİYE

Has been assessed and found to Comply with the Requirements of:
Denetlenmiş ve aşağıdaki standardın gerekliliklerine uygunluğu görülmüştür:

ISO 9001:2015

The Quality Management System is applicable to:
Kalite Yönetim Sistemi:

DESIGN, PRODUCTION, SALES AND AFTER SALES SERVICES OF MECHANICAL EQUIPMENT AND MACHINES FOR WATER AND WASTEWATER TREATMENT FACILITY, ENDEMIC PLANT, VEGETABLE OIL, NATURAL OIL EXTRACTION FACILITY AND RENEWABLE ENERGY CENTRAL, ATMOSPHERIC AND PRESSURIZED PROCESS TANKS, SPECIAL STEEL STRUCTURES, OZONE GENERATOR, ODOR AND GAS TREATMENT FACILITY EQUIPMENT FOR COMPACT TYPE WATER AND WASTEWATER TREATMENT FACILITYS, INDUSTRIAL FACILITYS, ENDEMIC PLANT AND HERBAL OIL EXTRACTION UNITS AS HIGH TECHNOLOGY PRODUCTS

SU VE ATIKSU ARITMA TESİSLERİ, ENDEMİK BİTKİ, BİTKİSEL YAĞ, NATÜREL YAĞ EKSTRAKSİYON TESİSLERİ VE YENİLEBİLİR ENERJİ SANTRALLERİ İÇİN MEKANİK EKİPMAN VE MAKİNELER, KOMPAKT TİP SU VE ATIKSU ARITMA TESİSLERİ, ENDÜSTRİYEL TESİSLER İÇİN ATMOSFERİK VE BASINÇLI PROSES TANKLARI, ÖZEL ÇELİK YAPILAR, OZON JENERATÖRÜ, KOKU VE GAZ ARITMA TESİSİ EKİPMANLARI, ENDEMİK BİTKİ VE BİTKİSEL YAĞ EKSTRAKSİYON ÜNİTELERİ GİBİ YÜKSEK TEKNOLOJİ ÜRÜNLERİNİN TASARIMI, ÜRETİMİ, SATIŞI VE SATIŞ SONRASI HİZMETLERİ

Certificate Number: QMS-0108219 / Belge Numarası: QMS-0108219
Initial Certification Date: 13.12.2022 / İlk Belgelendirme Tarihi: 13.12.2022
Certification Period: 3 Years / Belgelendirme Periyodu: 3 Yıl
Certificate Validity Date: 12.12.2024 / Belge Geçerlilik Tarihi: 12.12.2024

IQR Sertifikasyon Onayı

IAS ACCREDITED Management Systems Certification Body MSCB-135

IQR ULUSLARARASI BELGELENDİRME HİZMETLERİ LTD.ŞTİ.
Beşevler Mah. Kocayunus Sk. No:3 Arslan Han Plaza K:2 Nilüfer / BURSA
Tel.: +90.224.266 00 16 Faks: +90.224.249 41 13 www.iqrcert.com e-posta: info@iqrcert.com

CERTIFICATE

ENDEMİC FİTO FARMA BİYOTEKNOLOJİ SAN. VE TİC. A.Ş.

DUDULLU OSB MAH. DES-110 SOK. NO:42 ÜMRANİYE / İSTANBUL / TÜRKİYE

Has been assessed and found to Comply with the Requirements of:
Denetlenmiş ve aşağıdaki standardın gerekliliklerine uygunluğu görülmüştür:

ISO 14001:2015

The Environmental Management System is applicable to:
Çevre Yönetim Sistemi:

DESIGN, PRODUCTION, SALES AND AFTER SALES SERVICES OF MECHANICAL EQUIPMENT AND MACHINES FOR WATER AND WASTEWATER TREATMENT FACILITY, ENDEMIC PLANT, VEGETABLE OIL, NATURAL OIL EXTRACTION FACILITY AND RENEWABLE ENERGY CENTRAL, ATMOSPHERIC AND PRESSURIZED PROCESS TANKS, SPECIAL STEEL STRUCTURES, OZONE GENERATOR, ODOR AND GAS TREATMENT FACILITY EQUIPMENT FOR COMPACT TYPE WATER AND WASTEWATER TREATMENT FACILITYS, INDUSTRIAL FACILITYS, ENDEMIC PLANT AND HERBAL OIL EXTRACTION UNITS AS HIGH TECHNOLOGY PRODUCTS

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Certificate Number: EMS-0108219 / Belge Numarası: EMS-0108219
Initial Certification Date: 13.12.2022 / İlk Belgelendirme Tarihi: 13.12.2022
Certification Period: 3 Years / Belgelendirme Periyodu: 3 Yıl
Certificate Validity Date: 12.12.2024 / Belge Geçerlilik Tarihi: 12.12.2024

IQR Sertifikasyon Onayı

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CERTIFICATE

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DUDULLU OSB MAH. DES-110 SOK. NO:42 ÜMRANİYE / İSTANBUL / TÜRKİYE

Has been assessed and found to Comply with the Requirements of:
Denetlenmiş ve aşağıdaki standardın gerekliliklerine uygunluğu görülmüştür:

ISO 10002:2018

The Customer Satisfaction and Complaint Management System is applicable to:
Müşteri Memnuniyeti ve Şikayet Yönetim Sistemi:

DESIGN, PRODUCTION, SALES AND AFTER SALES SERVICES OF MECHANICAL EQUIPMENT AND MACHINES FOR WATER AND WASTEWATER TREATMENT FACILITY, ENDEMIC PLANT, VEGETABLE OIL, NATURAL OIL EXTRACTION FACILITY AND RENEWABLE ENERGY CENTRAL, ATMOSPHERIC AND PRESSURIZED PROCESS TANKS, SPECIAL STEEL STRUCTURES, OZONE GENERATOR, ODOR AND GAS TREATMENT FACILITY EQUIPMENT FOR COMPACT TYPE WATER AND WASTEWATER TREATMENT FACILITYS, INDUSTRIAL FACILITYS, ENDEMIC PLANT AND HERBAL OIL EXTRACTION UNITS AS HIGH TECHNOLOGY PRODUCTS

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Certificate Number: ISO-07341 / Belge Numarası: ISO-07341
Initial Certification Date: 13.12.2022 / İlk Belgelendirme Tarihi: 13.12.2022
Certification Period: 3 Years / Belgelendirme Periyodu: 3 Yıl
Certificate Validity Date: 12.12.2024 / Belge Geçerlilik Tarihi: 12.12.2024

IQR Sertifikasyon Onayı

IQR ULUSLARARASI BELGELENDİRME HİZMETLERİ LTD.ŞTİ.
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Tel: +90 224 266 00 16 Faks: +90 224 249 41 13 www.iqrcert.com e-posta:info@iqrcert.com

GCR CERT

CERTIFICATE

ENDEMİC FİTO FARMA BİYOTEKNOLOJİ SAN. VE TİC. A.Ş.

DUDULLU OSB MAH. DES-110 SOK. NO:42
ÜMRANİYE / İSTANBUL / TÜRKİYE

In recognition of the organization's Managements System which complies with

ISO 45001:2018

The scope of activities covered by this certificate is defined below

DESIGN, PRODUCTION, SALES AND AFTER SALES SERVICES OF MECHANICAL EQUIPMENT AND MACHINES FOR WATER AND WASTEWATER TREATMENT FACILITY, ENDEMIC PLANT, VEGETABLE OIL, NATURAL OIL EXTRACTION FACILITY AND RENEWABLE ENERGY CENTRAL, ATMOSPHERIC AND PRESSURIZED PROCESS TANKS, SPECIAL STEEL STRUCTURES, OZONE GENERATOR, ODOR AND GAS TREATMENT FACILITY EQUIPMENT FOR COMPACT TYPE WATER AND WASTEWATER TREATMENT FACILITYS, INDUSTRIAL FACILITYS, ENDEMIC PLANT AND HERBAL OIL EXTRACTION UNITS AS HIGH TECHNOLOGY PRODUCTS

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Certificate Number : GCR/CERT-12.2023.4399
Certificate Issue Date : 20.12.2023
Certificate Validity : 19.12.2024

Abimanyu Gaurav
Approval

GCR CERT