PETROCHEMICAL

Oxygen removal from boiler feed water — with the deaerator offline

A refinery's deaerator maintenance coincided with a two-week turnaround, but the boilers still needed oxygen-free feedwater. Ecolutia delivered <10 ppb dissolved oxygen at ambient temperature, at full flow.



CLIENT	LOCATION	SERVICE	DURATION
Crude oil refinery	Southern Europe	Temporary: O_2 removal during turnaround	Two weeks

<10 ppb
PRODUCT WATER OXYGEN

<0.1 µS/cm
PRODUCT WATER CONDUCTIVITY

450 GPM
FULL FLOW TREATED

THE CHALLENGE

No deaerator, no margin for corrosion

To minimize disruption, scheduled maintenance of the refinery's deaerator was to coincide with a two-week site turnaround — but oxygen still had to be removed from boiler feedwater to protect the boilers from serious corrosion.

The strict schedule demanded speed, reliability and thoroughness, plus the limited working area required a compact system that would not disrupt other turnaround activity at the refinery.

PROJECT SNAPSHOT

Feed source
Demineralized water (10 ppm O_2)

Output quality
<10 ppb O_2 · <0.1 µS/cm

Flow delivered
Up to 450 GPM

Technologies
Catalyst, controls, mixed-bed IX

THE SOLUTION

Catalyst and scavenger — no heat required

Ecolutia commissioned a temporary high-flow Proteus series unit, custom-loaded with processed catalyst and operational on arrival. Oxygen scavenger dosed at a precisely calculated ratio reacted on the catalyst to remove the oxygen — at ambient water temperature, with no deaerator heat.

- ✓ Automated dosing equipment isolating the scavenger chemistry and reducing chemical exposure risk
- ✓ A dedicated control step verifying optimal results before water returns downstream
- ✓ Mixed-bed ion exchange polish removing catalyst leachables — water returned at demineralized quality

TREATMENT FLOW PATH

CAT → **CTRL** → **MB**

CAT	CTRL	MB
Catalyst for oxygen removal	Quality control	Mixed-bed polish

THE RESULTS

<10 ppb oxygen, full flow, zero disruption

The system consistently produced water at <10 ppb O_2 and <0.1 µS/cm, securing boiler operation through the turnaround. Treating the full 450 GPM flow let the whole system come offline at once — saving considerable time and money — while in-line conductivity and dissolved-oxygen probes ensured a smooth completion.

PLANNING A TURNAROUND?

Protect your boilers, keep the schedule.

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