A DIVISION OF
SPECX TECHNOLOGIES PVT. LTD.



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TECHNOLOGY BROCHURE · 2026

TRANSFORMER OIL RECYCLING

PURIFICATION · REGENERATION · ONLINE DEGASSING

Systems that restore insulating oil and extend transformer service life, from multi-stage vacuum purification to adsorbent reclamation and on-load treatment.

- Transformer oil purification
- Transformer oil regeneration
- On-load treatment while energised
- Skid or containerised builds
- Mobile & permanent options
- Commissioning & training

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INSULATING OIL, BROUGHT BACK INTO SPECIFICATION

TREAT THE OIL, PROTECT THE TRANSFORMER

Insulating oil does two jobs at once: it carries heat away from the windings and keeps the electrical stress in check. Over years of service it ages. Water enters through breathers and seals, the oil oxidises, acids form, and fine sludge settles on the paper insulation. Each of these lowers the oil's electrical strength and shortens the life of the cellulose it surrounds.

Most of that damage is reversible. HiTorq builds treatment units that take aged oil back towards new-oil properties, so the charge can stay in the transformer instead of being drained and replaced. The right route depends on what an oil test shows.



FIG. 5.1 CONTAINERISED OIL TREATMENT UNIT (ILLUSTRATIVE)

ROUTE A

DRY & FILTER

Heating, fine filtration and vacuum dehydration.

- Takes out water, fibres and suspended particles
- Strips dissolved gases under vacuum
- Recovers breakdown voltage (BDV)

ROUTE B

RECLAIM

Percolation through regenerable adsorbent.

- Removes acids, polar ageing products and colour
- Raises interfacial tension (IFT), lowers acidity
- Inhibitor can be re-dosed after treatment

ROUTE C

ON-LOAD TREATMENT

Connected while the transformer is energised.

- Gradual drying and cleaning of oil and paper
- Suited to assets that cannot be switched off
- Requires suitable safety interlocks

TABLE 5.1 MATCHING THE ROUTE TO THE OIL TEST RESULT

FINDING IN THE OIL TEST	DRY & FILTER	RECLAIM	ON-LOAD
High moisture, low BDV	•	–	•
Particles, fibres, sludge	•	•	–
Dissolved gases	•	–	•
High acidity, low IFT	–	•	•
Dark colour, oxidation products	–	•	•
No outage window available	–	–	•

• main purpose of the route. Equipment is selected after reviewing oil analysis and the asset's condition.

THE CASE FOR TREATING INSTEAD OF REPLACING

HEALTHIER OIL, LONGER-LIVED INSULATION

01
Properties recovered
Electrical and chemical values brought back within the limits of the applicable oil standard.

02
Lower oil spend
The existing charge is reused, cutting the cost of fresh oil and of disposing of the old.

03
Paper protected
Dry, acid-free oil slows the ageing of cellulose insulation, the part that limits transformer life.

04
Less downtime
Treatment can be planned around outages, or carried out on load where permitted.

05
Mobile or fixed
Trailer, skid, container or workshop installations to suit the fleet.

06
Smaller footprint
Reusing oil means less hazardous waste and fewer fresh barrels to transport.



FIG. 5.2 TREATMENT SKID HOOKED UP TO A SUBSTATION TRANSFORMER (ILLUSTRATIVE)

WHERE IT IS USED

- Utility and distribution substations
- Generator step-up and power-plant transformers
- Industrial plants with in-house substations
- Solar and wind collector substations
- Traction, data-centre and other critical supplies

WHAT WE SUPPLY

- Sizing and process design for your fleet
- Fabricated units: skid, trailer or container
- Instrumentation, PLC control and interlocks
- Erection and commissioning at site
- Training for operators and maintenance staff
- After-sales service and spares

LET'S TALK ABOUT YOUR PLANT

FROM A FEED SAMPLE TO A RUNNING PLANT.

Share your feedstock, the products you want and the capacity you have in mind. Our process team will come back with a technical route, a block flow diagram and the next steps.

01 · Send

Feed details

Feedstock type, source, analysis if available, and the volume you expect per day.

02 · Define

Target products

The grades or cuts you need, the quality they must meet, and site constraints.

03 · Receive

Technical proposal

Process route, equipment scope and an execution plan for your review.

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Xtending Engineering Possibilities