

EADIEMAC Partial Upgrading — Commercial Executive Summary

A Breakthrough in Field-Deployable Partial Upgrading

EADIEMAC is a patented, low-pressure, molten-salt-heated partial upgrading technology that enables producers to ship heavy oil and bitumen with **dramatically reduced diluent**, lower operating costs, and improved netbacks — all without the capital intensity of refinery-scale upgrading. It is designed specifically for **upstream deployment**, where traditional upgrading is uneconomic or impractical.

The Commercial Problem

Producers lose billions annually due to:

- **High diluent costs** (30–40% blend ratios are common)
- **Pipeline penalties** for heavy, viscous blends
- **Limited market access** for raw bitumen
- **High transportation costs** per barrel of bitumen delivered
- **Lack of scalable, field-ready upgrading options**

EADIEMAC directly addresses these constraints.

The EADIEMAC Advantage

1. Major Diluent Reduction

By partially upgrading the bitumen on site, EADIEMAC significantly reduces viscosity and increases API gravity. This enables **substantial diluent reduction**, improving netbacks and freeing diluent for resale or reuse.

2. Low-Pressure, Low-Severity, Low-Risk

Unlike refinery visbreaking or coking:

- No high-pressure reactors
- No coke drums
- No catalyst
- No complex hydrogen systems

This makes EADIEMAC **safe, modular, and deployable at the well pad or central processing facility**.

3. Molten Salt Heating = Reliability + Efficiency

The patented molten-salt heating loop provides:

- Uniform, stable high-temperature heat
- Minimal fouling and coke formation
- High thermal efficiency
- Long equipment life

This is a key differentiator versus direct-fired visbreaking.

How It Works (Commercial Overview)

1. A fired heater warms a **molten salt bath**, the primary heat-transfer medium.
2. A portion of the product is recycled and **indirectly heated by the molten salt** to mild cracking temperature.
3. This hot recycle oil enters the **soak chamber**, where controlled thermal cracking occurs.
4. Fresh feed enters the **annulus**, heated gently through the vessel's ring wall.
5. Streams mix at the bottom, quenching cracking and producing a **stable, pipeline-ready partially upgraded product**.

The system is compact, modular, and optimized for remote operations.

Commercial Outcomes

- **Reduced diluent requirement** → lower transportation cost per barrel
- **Higher realized price** due to improved API gravity
- **Increased pipeline access** for producers currently constrained by viscosity
- **Improved netbacks** at the field level
- **Scalable deployment** from 2,000 bbl/day demonstration units to 10,000+ bbl/day modules
- **Lower emissions** than full upgrading or coking
- **Rapid payback** driven by diluent savings alone

Strategic Value Proposition

EADIEMAC gives producers a **competitive edge** by converting stranded or discounted heavy barrels into **higher-value, pipeline-compatible product** — without the capital, complexity, or regulatory burden of refinery upgrading.

It is a **commercially disruptive technology** for operators seeking:

- Higher margins
- Lower transportation costs
- Greater market access
- Reduced reliance on diluent supply chains
- Scalable, modular upgrading solutions