

# CHEMICAL PLANT & ENGINEERING

40 Years of Manufacture and Supply Experience



## MINERAL PROCESSING AGITATION



## CHEMICAL PLANT & ENGINEERING

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Chemical Plant & Engineering (CPE) is a world leading designer, manufacturer, and supplier of field process technology, and a division of CEM International Pty Ltd which is a wholly owned Australian company.

CPE specialises in global supply of Liquid Agitation, Filtration, and Powder Mixing solutions to a wide variety of industries including Wine and Spirits, Food and Beverage, Mineral Processing, Chemical and Pharmaceutical, Environmental, and Oil & Gas industries.

Headquartered in Melbourne, Australia, the company enjoys multiple strategic manufacturing partnerships and licensing agreements across the world. CPE's global presence is strengthened via agents and partners in New Zealand, SE Asia, South Africa, Europe, and America.



**Agitators**



**Filters**



**Powder Blenders**

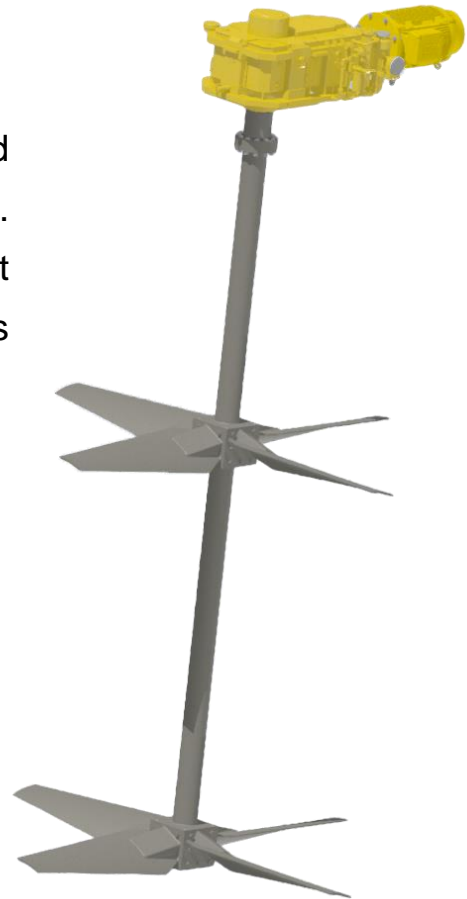


# MINEFLO™ AGITATORS

## MINERAL PROCESSING

CPE is a world leading designer, manufacturer and supplier of mineral processing agitators, MINEFLO™. With decades of knowledge, experience and market exposure, we thoroughly understand the requirements of this industry.

CPE has numerous installations in major mineral processing plants throughout AUNZ, Africa & USA.



### DESIGN SCOPE

#### DESIGN FOCUS

- MINEFLO™ is designed and manufactured with the requirements of mineral processing applications in mind.
- We provide custom design services to meet the process requirements of each application.

### APPLICATIONS

#### INDUSTRY

-  Gold and Alumina Refineries
-  Nickel, Cobalt, Copper, Lithium Refineries
-  Gas Dispersion
-  Precipitator, Surge and Quench Tanks
-  Tailing Plants
-  CIP, CIL, HPAL, POX Processes

### OFFERINGS

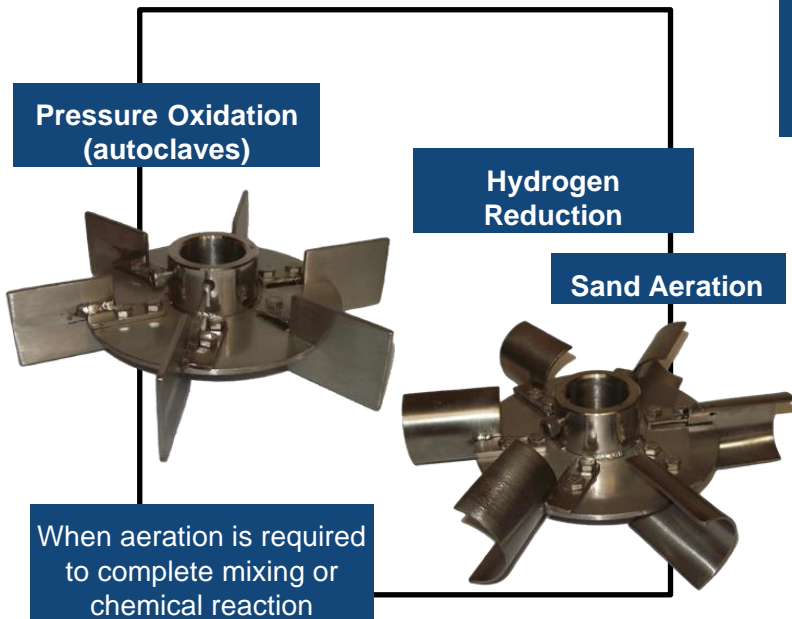
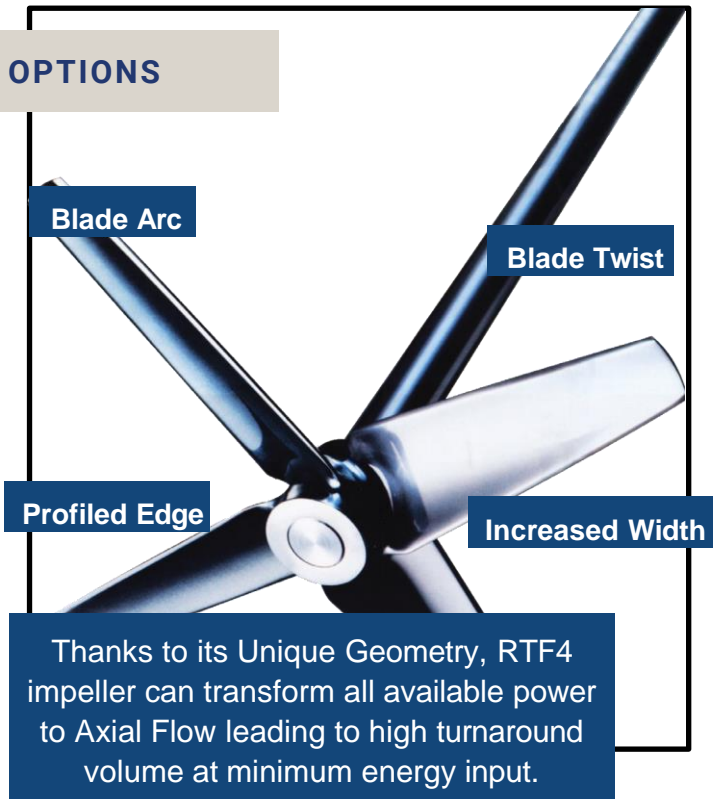
#### CPE DIFFERENCE

- **World Leading Technology:** fast mixing at a fraction of energy input offering significant cost savings
- **Optimised Product Quality**
- **Maximum Plant Utilisation**
- **Laboratory and Pilot Plant Testing**
- **Aftermarket Services:** process optimisation, failure analysis

## IMPELLER OPTIONS

### Hydrofoil Technology - RTF4

- Suitable for fast and thorough mixing and effective solid suspension.
- Efficient with minimum energy input to achieve desired results, leading to major cost savings
- Fast heat stabilisation
- Anti-scaling



### Rushton and Smith Turbine (Gas Dispersion Impellers)

- Suitable for incorporating air/oxygen into the tank while mixing.
- Can be custom designed and manufactured based on application requirements.

## MINEFLO™ Configurations



- Cantilevered top entry agitator system
- Direct drive and gear reduced motors
- Electric or air operated motors available
- Various seal types to suit process needs (mechanical, lip, hydraulic, etc.)
- Rubber lining for erosion resistance
- Various impeller construction materials to suit process requirements (stainless steel, carbon steel, titanium, etc.)
- Specialty coatings for additional corrosion and abrasion resistance
- Explosion proof motor

## AGITATION PROCESS OPTIMISATION



At CPE, we can conduct in-depth analysis of your process and recommend cost-effective solutions to optimise your process.

### When to Retrofit an Agitator?

- Ineffective solids suspension
- Time to uniform mixing is long or never!
- Frequent mechanical failure or maintenance shutdown
- Excessive energy consumption
- Considerable change in physical properties of the slurry

### Why Agitators Fail?

- Undersized agitator (impeller or motor)
- Wrong impeller design
- Wrong flow rate/pattern
- Low service factors in agitator design

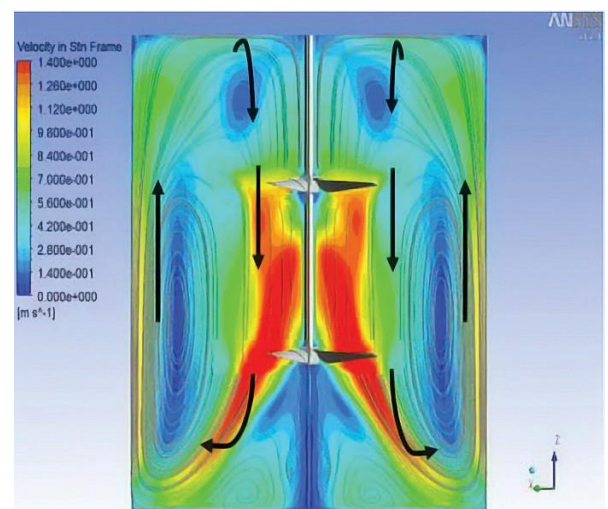
In most cases, retrofitting of an existing agitator involves impeller replacement (same size or different) without changing the motor and gearbox.

## BENEFITS of agitator retrofits with RTF4 Technology

CPE has a long history of retrofitting underperforming mineral processing agitators to provide enhanced performance and efficiency.

Our world leading **RTF4 impeller technology** offers:

- quicker mix time at the same power input
- lower power consumption and maximum plant utilisation
- effective solid suspension significantly reducing scaling
- increased mixing capacity
- lower power loadings, thus longer lasting agitator



Flow analysis of a top entry hydrofoil agitator



## OFFERINGS



### IMPELLER REPLACEMENT

Improvements without replacing motor



### RETRACTABLE

Allows maintenance without emptying tank



### DIRECT TO GEARED DRIVE

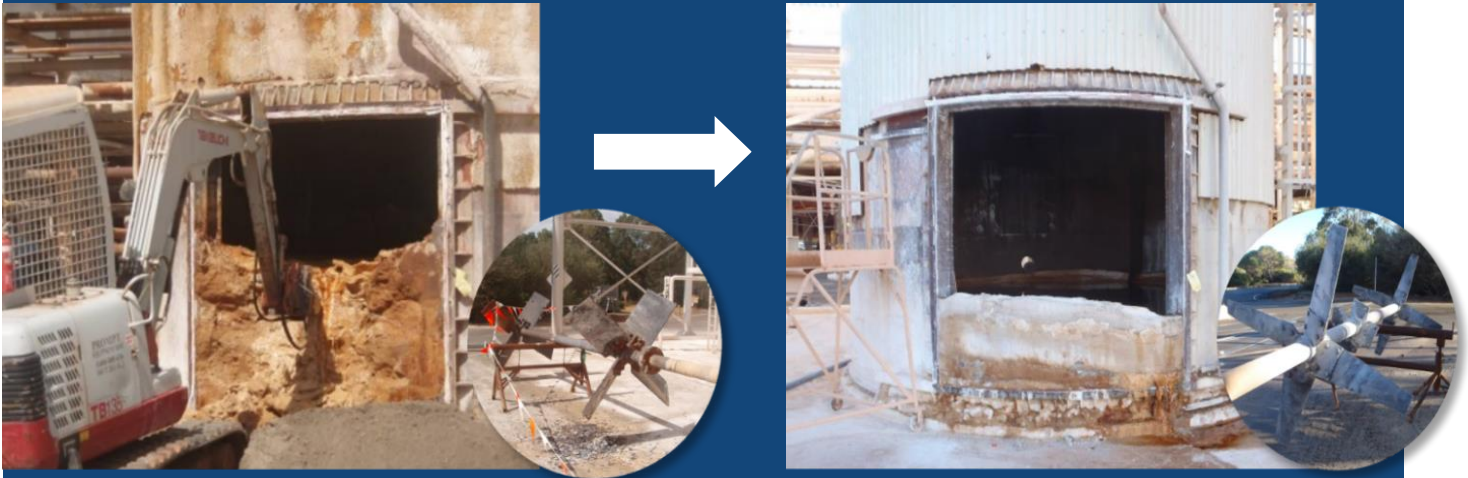
Control & improve performance, plus power savings



### IN-DEPTH PROCESS ANALYSIS

Determine problem, causes and solutions

## CASE STUDY ALCOA (Alumina Refinery)



**Problem:** Excessive scale build up in the tank

**Solution:** The old impellers were replaced by twin RTF4 impellers on single shaft

**Outcome:** Scaling reduced significantly as a result of effective solid suspension.

other clients who benefited from our retrofit solutions:



# Why Use MINEFLO™ ?

- Decades of design, manufacture and global supply experience.
- Superior agitation technology with many installations worldwide.
- Manufacturing facilities in Australia and strong global partnerships.
- We can custom design agitators to your specific process needs.
- A range of agitator configurations to suit various application requirements.
- Process analysis and optimisation services.



## Aftermarket Services



Process analysis & Optimisation to reduce mix time and energy consumption



Supervision of installation and commissioning



Retrofitting of existing agitators to enhance performance

## Applications & Processes

Impeller Type	Process	Application
Hydrofoil (RTF4)	<ul style="list-style-type: none"> <li>• Solid Suspension</li> <li>• Blending &amp; Mixing</li> <li>• Heat Stabilisation</li> </ul>	<ul style="list-style-type: none"> <li>• CIP, CIL, POX, HPAL Surge Tanks</li> <li>• Absorption Tanks</li> <li>• Conditioning Tanks</li> <li>• De-oxidation Tanks</li> <li>• Quench Tank</li> <li>• Precipitator Tanks</li> <li>• Buffer Tanks</li> <li>• Process Water Recycling/Storage Tank</li> </ul>
Gas Dispersion	<ul style="list-style-type: none"> <li>• Sand Aeration</li> <li>• Hydrogen Reduction</li> <li>• Pressure Oxidation (autoclaves)</li> </ul>	

## Chemical Plant & Engineering

CPE is a world leading designer, manufacturer, and supplier of agitation solutions.  
CPE is a division of CEM International Pty Ltd.



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