

# 3D TRASAR™ Solid Cooling Water Technology helps Hotel InterContinental Madrid in Spain reach environmental goals in a Safe, Simple and Sustainable way



## INTRODUCTION

InterContinental Hotels & Resorts is a global company with 9 luxury hotel brands, and 4,700 hotels in almost 100 countries around the world.

The InterContinental hotel in Madrid, Spain is a high-class hotel in the center of the capital which has 302 guest rooms and 41 suites.

As part of the Responsible Business approach, the InterContinental Hotels Group has a very ambitious environmental plan.

This approach includes improvement goals for all environmental aspects and aims at preserving natural resources while at the same time optimizing operational costs and improving the value of service offered to guests.

Intercontinental's environmental plan includes goals for reduction of waste, preservation of water and maintaining energy efficiency operation at the highest possible level.

On top of these goals a focus on safety of operations is promoted at all times.

## SITUATION

To ensure the guests' comfort level, the InterContinental hotel in Madrid is operating a water cooled, heating, ventilating and air conditioning (HVAC) chiller system.

The system contains different metallurgies and uses expensive city water as make-up.

### CUSTOMER IMPACT



### ECONOMIC RESULTS

94% reduction of waste packaging compared to traditional liquid offering.



Significant reduction of the waste discharge fee

Average fuel savings of 9.75% per box of solids shipped compared to traditional liquid solutions\*



Reduction in delivery fees

Average CO<sub>2</sub> avoidance of 9.75% per box of solids shipped compared to traditional liquid solutions\*



Provide financial options related to carbon cap and trade

Smaller warehouse footprint: 2.3 Kg bricks replace 25 liters of traditional chemistry



Space can be optimized for other demands

Reduced risk of exposure to chemicals. Solid Block is easier to handle and transport



Reduced associated employee liability risks

\*Based off of U.S. Solids Cooling Applications

Nalco Water and Ecolab have been entrusted to take care of the cooling system, and the operation for many years has been guarded by the 3D TRASAR Cooling Water Technology, a unique Nalco Water offering which monitors the system 24/7. Recently, Nalco Water introduced a new program to the 3D TRASAR Technology Offering, the 3D TRASAR Solid Cooling Water Technology.

The approach of the new 3D TRASAR Solid Cooling Water Technology combines solid chemistry with the established 3D TRASAR Control Platform and provides a 'Safe, Simple and Sustainable' approach to water treatment.

### CUSTOMER'S GOALS

The Madrid InterContinental's management is constantly looking for innovative solutions to improve their operations and increase the environmental performance. This approach led to an agreement between the hotel and Nalco Water to evaluate how the new 3D TRASAR Solid Cooling Water Technology would help the hotel reach their sustainability goals.

At the start of the validation process the following goals were agreed upon:

- Reduce waste packaging
- Reduce greenhouse emissions
- Improve the safety of operations
- Maintain good corrosion and scale control with advanced treatments.

### SOLUTION

The 3D TRASAR Solid Cooling Water Program is an offering specifically designed for the smaller cooling systems, which are quite common in the institutional market. This new offering is based on the use of solid products instead of liquids with the

objective of improving safety and sustainability while at the same time offering an optimal performance in terms of scale, corrosion and microbiological control.

The Nalco Water patented 3D TRASAR Technology coupled with its solid offering, ensures a consistent product dissolution and dosing rate. This offering therefore maintains adequate dosage at all times, resulting in assured program performance compared to competitors' offerings.

- **Safety enhanced aspects:**
  - The use of solid products avoids risks related to splashes or spills during transport and handling. This limits the exposure of the facility's personnel to chemicals.
  - The use of solid products reduces safety concerns related to handling and lifting heavy weights. A 25-litre, 28kg liquid drum product is replaced by 3-2.3kg blocks of solid product.
- **Sustainability enhanced advantage:**
  - Solid products have a smaller physical footprint compared to their liquid equivalents. Less energy is used in transportation
  - Solid products require reduced

packaging (94% by weight reduction in packaging)  
– Solid products result in reduced chemical waste disposal. In contrast to the liquid alternative, no residual chemical in the drum has to be disposed.

The 3D TRASAR Solid Cooling Water Technology Offering is a combination of solid chemistry, equipment (dispensing, automation and control) and on- and off-site services.

It combines the Ecolab dispensers and solid chemistry packaging capabilities with Nalco Water's proprietary chemical formulations and automation (including the next generation 3D TRASAR Technology Controller with enVision, Plant Resource Optimizer and System Assurance Center platforms).

### ACTIONS

The new 3D TRASAR Solid Cooling Water Unit was easily installed and connected to the cooling system in parallel with the existing 3D TRASAR Technology Unit.

At the start, the system ran in parallel with the existing automation



**Figure 1** - Nalco Water's 3D TRASAR Solid Technology helps maintain ideal room and hotel climate conditions therefore enhancing client comfort

and after a baseline period of 1 month, the actual validation of the functionality and reliability of the new 3D TRASAR Solid Cooling Water Unit was started.

During the following 5 months, all the essential parameters (conductivity, pH, ORP and corrosion rates) were monitored and compared to the recorded baseline.

## RESULTS

Improved safety, smaller footprint, increased performance.

### Improved safety

- Reduced risk of spills and leakages when handling solid blocks instead of liquids
- Lower risk of injuries coming from lifting heavy weights

### Improved Performance

- Corrosion protection was kept at a high level with safer treatment programs
- No signs of scale formation during both baseline and trial periods.

### Sustainable Impact

- By using solid chemistry, the risk level involved with chemistry transport, manipulation and storage has been significantly reduced.

- In normal treatment conditions, this approach delivers a high reduction in transport carbon footprint.
- Waste packaging has been reduced by 94% resulting in a significant reduction of the waste discharge fee.

A zinc based corrosion inhibitor was replaced by a non metal containing inhibitor while maintaining the same level of corrosion inhibition.

The above results were obtained thanks to the unique combination of solids chemistry dispensing and dosage with the 3D TRASAR Technology Automation and control capabilities.

## CONCLUSIONS

The program benefits include:

- Greater safety was achieved with the solid chemistry. Easier to handle and transport.
- Smaller warehouse footprint: 2.3 Kg bricks replace 25 liters of traditional chemistry.
- Less waste: 94% reduction of waste packaging vs. liquid approach.
- Maintained a high level of corrosion protection with more

environmental-friendly chemistry resulting in optimum equipment life.

- Maintained optimum water use and energy efficiency at fluctuating operation conditions.
- Maintained high degree of automation 24/7 monitoring, allowing for peace of mind.

The InterContinental hotel in Madrid confirmed that the implementation of the 3D TRASAR Solid Cooling Water Technology contributed to achieving their required environmental sustainability goals:

- Smaller carbon footprint
- Lower waste generation
- Safer operation

After the trial, the InterContinental Hotel decided to keep using the 3D TRASAR Solid Cooling Water Technology Offering. It was a major success for the InterContinental, Ecolab and Nalco Water as they worked collaboratively to help the hotel achieve its environmental goals all while reducing costs and maintaining quality performance.

Nalco Water would like to thank the InterContinental Hotels Group for their permission to publish the information contained in this Case History.