



# XPLATE NANOTECHNOLOGY FOR AIR SIDE COMBUSTION OF SOLID, LIQUID & GAS FUELS FOR BOILERS & FURNACES

THE **ONLY** TECHNOLOGY THAT WORKS ON **AIR SIDE OF COMBUSTION!**



XPLATE NANO TECHNOLOGY BY QE ENERGY INTERNATIONAL CO. LTD. IN ASSOCIATION WITH SOLPOWER INDIA PVT. LTD.



## MAJOR FOCUS OF XPLATE TECHNOLOGY

- ❖ To Reduce Fuel Consumption
- ❖ To Reduce Emissions of  $CO$ ,  $CO_2$ ,  $NO_x$ ,  $SO_x$
- ❖ To Reduce Root cause of Global Warming

## PRINCIPLE OF XPLATE TECHNOLOGY

- ❖ The Principle of XPLATE technology is based on **Fuel Saving and Emission Reduction.**
- ❖ We work on the Nanoscale level i.e. On the molecular forces of interaction of oxygen molecules in air.
- ❖ Oxygen in air is an important reactant which oxidizes with carbon present in the fuel.



## SOLUTION - XPLATE

- This is where **XPlate Nano Technology** comes into the picture where it provides the **separation of  $O_2$  molecules from the clusters so that they are available for combustion.**
- Free Oxygen molecules are available for reaction with Carbon.
- Hence, **Carbon Monoxide will reduce and the amount of  $O_2$  present in air supply will be completely utilized for combustion.**



# MAXIMUM BENEFIT OF XPLATE TECHNOLOGY

## ❖ *Economic*

- $O_2$  % is completely consumed from the air supply giving **Complete Combustion**.
- **Reduction** in Fuel consumption.
- **Reduction** in Electricity consumption.

## ❖ *Environment*

- Reduce  $NO_x$  emission (Ton/day)
- Reduce  $SO_x$  emission (Ton/day)
- Reduce  $CO_2$  emission (Ton/day)



# CERTIFICATES

# PATENT APPLICATION



- ❖ The **Technology** has already applied for a patent both in Vietnam and International in UK and Europe by Dr. Wudh Chayabutra who is the owner of QE Energy International Co. Ltd.
- ❖ The company is based in Bangkok, Thailand. The **XPLATE logo** has already registered and belong to QE Energy International Co. Ltd. as well.

BỘ KHOA HỌC VÀ CÔNG NGHỆ  
CỤC SỞ HỮU TRÍ TUỆ

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
Độc lập - Tự do - Hạnh phúc

Số: 14666/QĐ-SHTT

Hà Nội, ngày 05 tháng 03 năm 2018

**QUYẾT ĐỊNH**  
Về việc chấp nhận đơn hợp lệ

**CỤC TRƯỞNG CỤC SỞ HỮU TRÍ TUỆ**

Căn cứ Điều lệ Tổ chức và Hoạt động của Cục Sở hữu trí tuệ ban hành theo Quyết định số 69/QĐ-BKH-CN ngày 15/01/2014 của Bộ trưởng Bộ Khoa học và Công nghệ;  
Căn cứ điểm 13.2 và điểm 13.6.b của Thông tư số 01/2007/TT-BKH-CN ngày 14/02/2007 của Bộ Khoa học và Công nghệ hướng dẫn thi hành Nghị định số 103/2006/NĐ-CP;  
Căn cứ kết quả thẩm định hình thức đơn đăng ký sáng chế:  
Số đơn: 1-2018-00371

**QUYẾT ĐỊNH:**

**Điều 1.** Chấp nhận đơn hợp lệ với những ghi nhận sau đây:  
Ngày nộp đơn: 26/01/2018  
Chủ đơn(\*): WUDH CHAYABUTRA (TH)  
Địa chỉ: 26/23 Soi Ngamwongwan 19, Bangkhen district, Muang, Nonthaburi, Thailand 11000  
Đại diện của chủ đơn: HAI HAN IP CO., LTD.  
Tên sáng chế: Phương pháp điều chỉnh phản ứng cháy bằng thiết bị trung hòa bề mặt tinh điện trên bề mặt rắn  
Ngày ưu tiên(\*\*): 05/09/2017 Số đơn ưu tiên: 1701005051 Nước ưu tiên: TH

**Điều 2.** Công bố đơn trên Công báo Sở hữu công nghiệp theo quy định tại điểm 14.2.a và thẩm định nội dung trong trường hợp có yêu cầu theo quy định tại điểm 25.1 của thông tư số 01/2007/TT-BKH-CN.

**Điều 3.** Chánh Văn phòng, Trưởng phòng Đăng ký, Trưởng phòng Thông tin chịu trách nhiệm thi hành Quyết định này./.

Nơi nhận:  
- Người nộp đơn.  
- Lưu: VT, HT.

TL. CỤC TRƯỞNG  
TRƯỞNG PHÒNG SÁNG CHẾ SỐ 3  
CỤC SỞ HỮU TRÍ TUỆ  
Nguyễn Thanh Tú



# Thermax Chemical Ltd, India

- ❖ The **XPlate** system increased the boiler temperature by **20%**; yielding more energy from the combustion process.
- ❖ The fuel consumption with **XPlate** was reduced by **5.77%**
- ❖ No adverse effect on the boiler and its operation were observed during the trial with **Xplate**.

**THERMAX LIMITED** VILLAGE PAUDH, POST MAJGAON (VIA PATALGANGA), TALUKA KHALAPUR, DISTRICT RAIGAD 410 206. INDIA ☐ TEL: (02192) 668509/510/511  
Website : [www.thermaxglobal.com/chemical](http://www.thermaxglobal.com/chemical) ☐ IT PAN - AAAC 3910D  
Customer Care : 1800-209-0115 (India Toll Free)

Chemical Division



**THERMAX**

ISO 9001  
ISO 14001  
OHSAS 18001

M/S SOLPOWER (INDIA) PVT. LTD. has installed X Plate equipment on our two boilers - furnace oil fired.

We have observed fuel saving with same is 5 to 6% with our rest working conditions.

With this installed plate we were able to reduce Carbon Emission .

This plate has no any negative impact on operations .

We are sure about the product & looking foward for such initiatives in our other units for enery conservation.

Thanks.

Milind Bhope.

Utility & Project Manager .  
Thermax Chemical Division.  
Paudh Plant.

18-Aug-18



# Nitco Limited, India

- ❖ Reduction in gas consumption by **2-3%**.
- ❖ No adverse effects on kiln performance or respective product quality.



TO WHOSOEVER IT MAY CONCERN

August 19<sup>th</sup>, 2014

M/S SOLPWER (INDIA) PVT LTD has installed X-Plate equipment on one of our Kilns.

We have observed over a period of one-month that after the installation of X-Plate equipment there is a reduction in gas consumption by 2 to 3 %.

No negative effects observed on kiln performance or product quality.

We appreciate the new technology and looking forward to continuing our working relationship in the future.

Best regards,

Ravindra Bohra

President (Operations)

Corporate Office : NITCO Ltd., Nitco House, Station Road, Kanjur Marg (E), Mumbai - 400 042.  
Tel : +91 22 67302500/ 67521555. Fax: 91 22 67521500. Web : www.nitco.in

Factory : NITCO Ltd, Village: Shingao, Post: Poyand, Taluka Alibag, Dist: Raigad, Pin: 402108, Maharashtra  
Tel No. : 02141 252278/ 252490/252280 Fax No : 021 41 252107 Email ID: nitcoalibag@nitco.in







# Muda Paper Mills, Malaysia

- **Reduction** in coal consumption by **5%**.
- No adverse effects on CFB Boiler or respective product quality.



6/2/2015

To Whom It May Concern

**SUBJECT: XPLATE™ TRIAL RESULTS AT MUDA PAPER MILLS SDN BHD**

On April 9<sup>th</sup> 2012, XPlate™ was installed on Force Draft Fan #1 and #2 of a 20 ton/hour Coal Fired Boiler (CFB). The trial was conducted until 30<sup>th</sup> April 2012. Based on data collection recorded, it was calculated that XPlate™ had reduced the coal consumption of the boiler by 5.02%. The difference of the flames before and after of the XPlate™ installation that can be visibly seen further suggests the XPlate™ had effects on the combustion in the CFB system.

As a summary, we are pleased to acknowledge that the XPlate™ trial conducted by Valoraz Sdn Bhd yielded a coal consumption reduction of 5%. Additionally, further reductions of ash amounting to 11.07% were also recorded in the same trial period. No adverse effect on the CFB boilers were reported during the trial. Based on these results, we find that XPlate™ application has the potential to generally support energy efficiency initiatives and for CFB system in particular.

Sincerely,

**Mr. Teh Ti Kiam**

**Facilities Manager**





# CPF Food And Beverage Co. Ltd. Thailand

- ❖ **Reduction** in gas consumption by **3-4%**.
- ❖ No adverse effects on Boiler operations or respective product quality.



## CPF Food and Beverage Company Limited

115, 115/1 Moo 1 Mittraphap Rd., Thumbol Tandiew, Kaengkhoi, Saraburi 18110, Thailand

Tel. +(66) 3624-7072-6 Fax. +(66) 3624-7166

TAX Num. 0105561038639 Branch 00002

Date: 14<sup>th</sup> January 2020

Subject: Product Technology appreciation letter

To whom it may concerns,

I am writing this letter on behalf of CPF FOOD AND BEVERAGE CO., LTD. I want to appreciate for your product XPLATE® and Technology which able to reduce gas consumption at our boiler. We tested your XPLATE® product on boiler no.4 (3.2 Tons) at the Sausage-production plant II during October - December 2019 and found gas saving by 3.5%. Boiler operations are stable without any negative effects onto our boiler.

Once again, thank you so much for your efforts. Wish you all the best for your future endeavors.

Thanks and Regards,

Mr. Anek Pinit

Engineering Manager



# Worcester College Of Tech, UK

- ❖ **Reduction** in gas consumption and increased the combustion efficiency of respective boilers.
- ❖ No adverse effects on Boiler performance or respective product quality.



W O R C E S T E R  
*College of Technology*

Principal: Chris Morecroft

Deansway, Worcester WR1 2JF • Tel: 01905 725555 • Fax: 01905 28906  
email: college@worctech.ac.uk • website: www.worctech.ac.uk

Date : November 3, 2008

To: QE (Quantum Equilibrium) International Ltd  
Unit 5, Weights Business Park  
Redditch, Worcestershire, B97 6RG, United Kingdom

**Subject : XPlate**

We would like to thank QE (Quantum Equilibrium) International Ltd for the installation of XPlate at 17 boilers in our buildings, which include; the All Saints' building, St. Andrew's building, St. Wulstan's building, and the School of Art & Design building of Worcester College of Technology.

Your product, the XPlate, has definitely helped the college make significant gas consumption savings by increasing the combustion efficiency of our boilers. We have seen this effect both visually in the boilers' flame colour change and quantitatively in our measurements of gas usage.

Thank you again for your XPlate product.

Yours Sincerely,

Dave Boulton

Property Services Manager

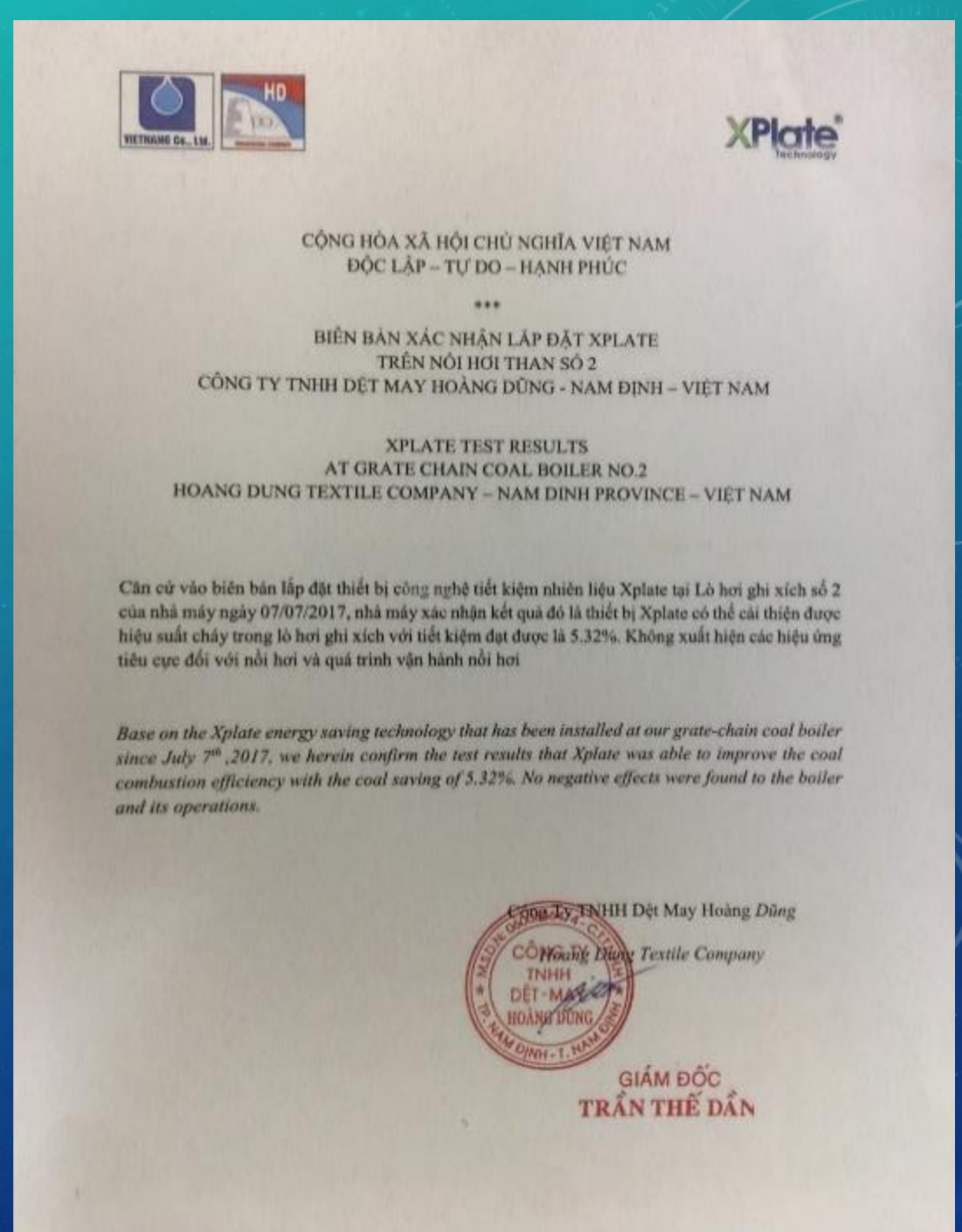
Worcester College of Technology, Worcestershire, United Kingdom





# Hoang Dung Textile Co. Ltd. Vietnam

- ❖ **Reduction** in coal consumption which resulted coal savings by **5.32%**.
- ❖ No adverse effects on boiler performance or respective product quality.





# Viglacera Thai Binh Co. Ltd. Vietnam

- ❖ Improved NG combustion efficiency and dry efficiency with NG savings of **3.74%**.
- ❖ No adverse effects on Boiler performance or respective product quality.



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

ĐỘC LẬP – TỰ DO – HẠNH PHÚC

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BIÊN BẢN XÁC NHẬN LẮP ĐẶT XPLATE TRÊN Lò SẤY PHUN SỐ 2  
CÔNG TY CỔ PHẦN VIGLACERA THÁI BÌNH – THÁI BÌNH – VIỆT NAM

XPLATE TEST RESULTS AT SPAYDRY NO.2

VIGLACERA THAI BINH JOIN STOCK COMPANY – TỈNH THÁI BÌNH – VIỆT NAM

Căn cứ vào biên bản lắp đặt thiết bị công nghệ tiết kiệm nhiên liệu Xplate tại lò sấy phun sử dụng khí tự nhiên (NG) số 2 của nhà máy ngày 13/6/2017, nhà máy xác nhận kết quả đó là thiết bị Xplate đã cải thiện được hiệu suất cháy và hiệu suất sấy tại lò sấy phun sử dụng khí tự nhiên số 2 với tiết kiệm đạt được 3,74 %. Không xuất hiện các hiệu ứng tiêu cực đối với lò và quá trình vận hành tại lò sấy phun.

*Base on the Xplate energy saving technology that has been installed at our NG Spay dry no.2 since June 13, 2017, we herein confirm the test results that Xplate technology was able to improve the NG combustion efficiency and dry efficiency with the NG saving of 3,74 %. No negative effects were found to the boiler and its operations.*

Công Ty Cổ Phần Viglacera Thái Bình

Viglacera Thai Binh Join Stock Company



*[Signature]*  
GIÁM ĐỐC  
Nguyễn Duy Tiến



# Thai Food International Co. Ltd. Thailand

- ❖ Reduction in rice husks consumption by **5%**.
- ❖ No adverse effects on Boiler performance or respective product quality.



## APPRECIATION LETTER

TO WHOM IT MAY CONCERN

SUBJECT: XPLATE TEST RESULTS AT BOILER Z-250E

THAI FOODS INTERNATIONAL CO., LTD. is the manufactory of yeast extract and baker's yeast in Thailand. Since November 1<sup>st</sup> 2017, XPLATE has been installed at our boiler using rice husks as the energy source. The consumption of rice husks showed saving about 5% and the boiler has operated very well since the installation day.

We appreciated your XPLATE technology and looking forward to work long-term with your company in the future.

Yours Sincerely,

Chairat Anantanasakul

Assistant Engineering Department Manager

March 26<sup>th</sup> 2018

18 MOO 5 SUCHART PATTANA ROAD, TAMBOL BANGSAIPA, AMPHUR BANGLEN, NAKORNPATHOM PROVINCE 73130 THAILAND TEL: +66 3439 1016 -9 FAX: +66 3439 1020 [WWW.THAIFOODS.CO.TH](http://WWW.THAIFOODS.CO.TH)





# Bach Thanh Ceramic Co. Ltd. Vietnam

- ❖ Improvement in Grate Chain Furnace giving savings of more than **3%**.
- ❖ No adverse effects on Grate Chain Furnace performance or respective product quality.



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
ĐỘC LẬP – TỰ DO – HẠNH PHÚC

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BIÊN BẢN XÁC NHẬN LẮP ĐẶT XPLATE TRÊN LÒ GHI XÍCH SỐ 3 TẠI NHÀ MÁY GẠCH  
MEN BÁCH THÀNH – ĐỒNG NAI – VIỆT NAM

XPLATE TEST RESULTS AT THE GRATE CHAIN FURNACE NO.3  
BACH THANH CERAMIC – DONG NAI – VIET NAM

Căn cứ vào biên bản lắp đặt thiết bị công nghệ tiết kiệm nhiên liệu Xplate NFS tại lò ghi xích số 3 sử dụng than và biomass của nhà máy ngày 1/4/2019 và biên bản ghi nhớ giữa công ty TNHH Năng Lượng QE Việt Nam và công ty TNHH Gạch Men Bách Thành. Nhà máy xác nhận là thiết bị Xplate đã cải thiện được hiệu suất cháy tại lò với tiết kiệm đạt được trên 2.5%. Không xuất hiện các hiệu ứng tiêu cực đối với lò và quá trình vận hành tại lò.

*Base on the Xplate saving energy technology that has been installed at the Grate Chain Furnace No.3 use coal and biomass since April 1, 2019 and MOU between QE Energy Viet Nam and Bach Thanh Ceramic Co. Ltd, we herein confirm the test results that Xplate technology was able to improve our Grate Chain Furnace and saving more than 2.5%. No negative effects were found to the Grate Chain Furnace and its operations.*

Công Ty TNHH Gạch Men Bách Thành

Bach Thanh Ceramic Co., Ltd

TRƯỞNG PHÒNG Q.LTB.

Đào Minh Tâm



# Yokohama Tire Vietnam Co. Ltd. Vietnam

This is a certificate of **XPLATE** Test proving that the combustion efficiency increased, carbon monoxide (CO) reduced and able to save gas consumption more than **2%**.

*We have been approached by QE Energy Vietnam Co. Ltd. who is marketing their Xplate technology to the boilers and furnaces in Vietnam. Since March 2019, we have tested its XPlate equipment on our gas boiler and the results proved that the combustion efficiency increased, carbon monoxide (CO) reduced and able to save gas consumption more than 2%. No negative effects were detected on the boiler and its operations.*



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
ĐỘC LẬP – TỰ DO – HẠNH PHÚC

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GIẤY CHỨNG NHẬN KIỂM TRA XPLATE TẠI NỒI HƠI NHIÊN LIỆU KHÍ CNG  
YOKOHAMA – BÌNH DƯƠNG – VIỆT NAM

CERTIFICATE OF XPLATE TEST AT THE CNG FUEL BOILER  
YOKOHAMA – BINH DUONG PROVINCE – VIETNAM

Chúng tôi đã được tiếp cận bởi Công ty TNHH Năng lượng QE Việt Nam, những người đang tiếp thị công nghệ Xplate của họ cho các lò hơi và lò nung tại Việt Nam. Kể từ tháng 3 năm 2019, chúng tôi đã thử nghiệm thiết bị Xplate của họ trên nồi hơi gas của chúng tôi và kết quả đã chứng minh rằng hiệu suất đốt cháy tăng lên, carbon monoxide (CO) giảm và có thể tiết kiệm mức tiêu thụ khí hơn 2%. Không có tác động tiêu cực được phát hiện trên nồi hơi và hoạt động của nó.

*We have been approached by QE Energy Vietnam Co. Ltd. who is marketing their Xplate technology to the boilers and furnaces in Vietnam. Since March 2019, we have tested its XPlate equipment on our gas boiler and the results proved that the combustion efficiency increased, carbon monoxide (CO) reduced and able to save gas consumption more than 2%. No negative effects were detected on the boiler and its operations.*

QE Energy Vietnam Co. Ltd. は、Xplate 技術をベトナムのボイラーと炉に販売しているというアプローチを受けました。2019年3月以降、当社のガスボイラーで Xplate 装置をテストし、その結果、燃焼効率が向上し、一酸化炭素 (CO) が減少し、ガス消費量を 2% 以上節約できることが証明されました。ボイラーとその運転に悪影響は検出されませんでした。

CÔNG TY TNHH YOKOHAMA TYRE VIỆT NAM

Yokohama Tyre Vietnam Inc.



*[Handwritten signature]*  
*[Handwritten signature]*





# **SOLPOWER INDIA PVT. LTD.**

A-412, City Mall, Plot-4, Sector 19, Turbhe, Vashi, Navi Mumbai – 400705, INDIA

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