

**英国化学工学会の
国際賞 (ICHEME Global Awards 2013) 受賞決定
The Chemical Engineering Project
of the Year Awards
(Recognises the best chemical engineering project
contributing to improved management of industrial assets.)**

**Depressurised distillation for energy-efficient biofuel
Kansai Chemical Engineering Company**

The Japanese government has an R&D project to encourage development of non-fossil sustainable energy resources. As part of this, the team at Kansai found a way to reduce the energy consumption from producing dehydrated fuel ethanol from soft biomass (such as napier grass) by 50%, by improving the internal heat integrated distillation column (HIDiC) system. The double-tube HIDiC column uses a dry vacuum pump to decrease the pressure, which lowers the boiling point of the liquid to 70°C. As well as lowering the energy requirement, this greatly reduces fouling, further improving the efficiency of the process.



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the chemical engineer
AWARDS SUPPLEMENT 2013

Awards for Innovation and Excellence 2013

IChemE awards evening and annual dinner
in association with Saudi Aramco

THURSDAY 7 NOVEMBER 2013 | BOLTON WHITES HOTEL | BOLTON, UK

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ENGINEERING
WORLDWIDE

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Awards for Innovation
and Excellence 2013

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Recognises the best chemical engineering project contributing to improved management of industrial assets.

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Improving PLA biopolymers Plaxica

Although polylactic acid is the most successful biopolymer developed to date – with around 150,000 t produced every year – only stereocomplex PLA, a combination of poly(L-lactic acid) and poly(D-lactic acid) can fully compete with the thermal and mechanical performance of petrochemical polymers. However, the D-lactic acid monomer required to produce stereocomplex PLA is prohibitively expensive. Plaxica's *Optipure* technology produces D-lactic acid in an elegant continuous process which uses low cost L-lactic acid as a feedstock. This creates the potential for the production of stereocomplex PLA at a cost which competes with conventional polymers.

From benchtop glass to modular steel BPE

BPE needed to scale up and automate a manual bench-scale aseptic drug manufacturing process for commercial launch on a new market. Each of the 22 processing steps had to be scaled up individually and transferred to standalone equipment operated semi-remotely under semi-automatic control. Each step was risk-assessed and four were deemed too high risk to use. However, a cross-disciplinary team including BPE engineers, scientists, production, quality and regulatory personnel identified alternative processing equipment and tested it to tight timescales. The final process met all in-house specifications and all quality and regulatory criteria in the US.

Increasing morphine production to a budget Johnson Matthey Macfarlan Smith

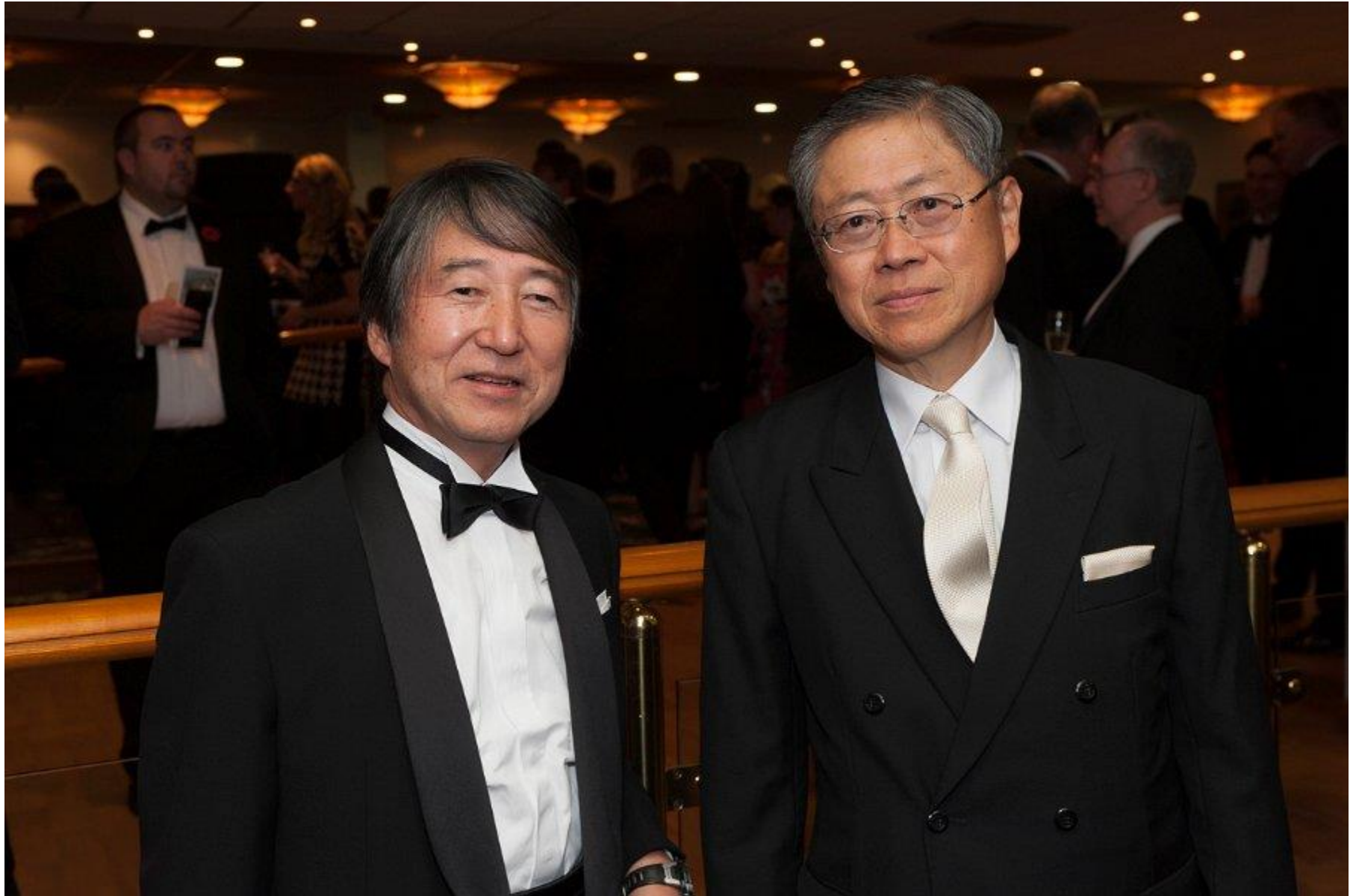
Macfarlan Smith is the world's largest supplier of opiate active pharmaceutical ingredients (APIs), with the widest portfolio of opiate products for the pain relief market. Part of the Edinburgh site, in a busy residential area, includes a continuous extraction facility that extracts morphine from poppies for use in opiate-based API manufacture. The extraction facility uprate project set out with some extremely challenging goals: to increase the capacity by 70% without increasing labour or utilities use, while sticking to a tight budget. The design team's extensive plant study identified where processes could be made more efficient, and utilities usage has in fact dropped, along with waste.

Cleaning up natural gas The Queen's University Ionic Liquid Laboratories Research Centre & PETRONAS

Natural gas remains an important source of energy. To keep up with growing demands, we need to use new gas reservoirs, but they are often contaminated with toxic mercury, which must be removed. Now, Queen's University Ionic Liquid Laboratories (QUILL) in Belfast, a catalyst manufacturer, and PETRONAS, have, in partnership, developed an innovative technology that is 3–6 times better than current methods. Until recently, PETRONAS solved the problem with off-the-shelf technologies, but these are not always able to deal with changes in operating conditions. The new technology can be retrofitted to existing plants with no need for changes or capital expenditure. The result, the world's first solid-supported ionic liquid mercury removal unit, was implemented in record time and has been operating continuously since late 2011.

当社の業績の紹介

And the winner is



リーボックスタジアム横のレセプション会場にて
Dress code: black tie

**IChemE Awards 2013
7 November 2013,
Bolton, UK**



Ms. Judith Hackitt CBE (IChemE President)



受賞者と司会者(左端)、IChemE President (中央)



会場全体写真(32番テーブルで示したところ)



授賞式の Gala Dinner の情景