



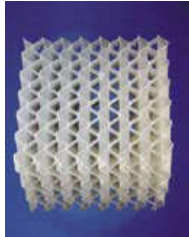
Welcome to the latest newsletter from HAT International, aimed at keeping all our customers up to date with the latest products and developments within our company, as well as some general news on what's going on in the industry. We trust you find it informative and we welcome any comments or suggestions you may have to improve the format.

If you wish to unsubscribe, simply reply at any time with 'UNSUBSCRIBE' in the subject box.

Latest Developments

NEW ORDERS

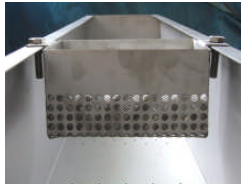
April and May were busy months for customers requiring our specialist **vane inlet distributors and mist eliminators** with many orders for items in **stainless and duplex** destined for a variety of off-shore and on-shore projects. Also we received several orders for our **polypropylene demisters** including one at 2500mm diameter. An order for a range of **column internals and packing** for a CO2 removal plant has been received and a large quantity of **structured packing in PVDF** is being supplied to a customer in the UK for an upstream separation project.



T-125-S Pack in PVDF

RECENT DELIVERIES

Recently completed contracts include 3 sets of **TEG contactor internals** for Italy; another 3 sets of similar equipment for the Netherlands;



Separator internals for 7 vessels for Korea; **MEG regeneration column packing and internals** for

Norway; several more **separator internals** for a customer in Malaysia; and delivery of a repeat order for **test separator internals** for a client in the UAE.

MEET US AT THESE EXHIBITIONS

HAT International is attending or being represented at the following exhibitions. If you are in the area, please drop by and say hello:

ASIAN OIL & GAS SHOW
Seoul, Korea, 25-27 June

RIO OIL & GAS
Rio de Janeiro, Brazil, 15-18 Sept

ADIPEC
Abu Dhabi, UAE, 03-06 Nov

NEW REPRESENTATIVE IN KOREA

We are pleased to announce the appointment of a new representative for HAT International in South Korea. UKOR Process Engineering - a subsidiary of Hi-Tech Corporation in Seoul - will be promoting HAT's products to the local market at the Asian Oil & Gas Show in June. For further information see www.hi-tech.co.kr

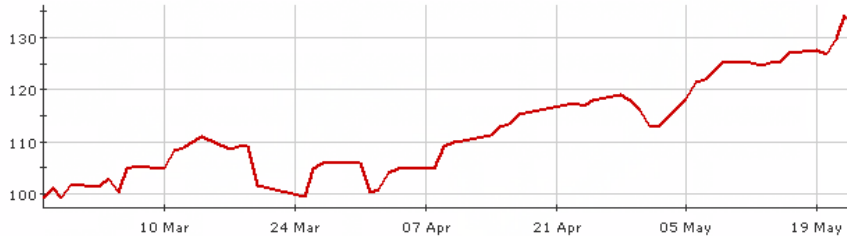


The latest newsletters are available on our website. If you would prefer to receive just a link when they are published, please let us know.



Industry & Market News

West Texas Intermediate Crude Oil \$/barrel



OIL UP & UP... \$100... \$110... \$120... \$130...
A one-way bet on the futures market? Speculation has kept oil on the boil, underpinned by regular sprinklings of bad news on production issues or stock levels. It heads towards the month end at \$133/bbl.

Nickel 3mo Official \$/m tonne



NICKEL SINKS...
Production levels are increasing or scheduled to increase soon, taking some heat out of this market and leaving prices at a 2 year low. The metal is trading at \$25/kg late May.

United States Dollar - Euro



DOLLAR STEADIES...
The Dollar regained some ground against the Euro and Pound for a while early May, before weakening again as equity markets fell on poor data. The major rates stand at £1.00 = \$1.98 and €1.00 = \$1.58 on 26th May.

United States Dollar - GBP





EUROPE

IRELAND – Guinness' Dublin brewery will not be closed after all. Diageo, Guinness' parent company, has decided to retain the historic site at St James' Gate in central Dublin as part of a €650m (\$1b) consolidation and upgrade plan. Diageo says it will build a new modern brewery at a yet-to-be-announced site outside Dublin, which will produce Guinness for export, particularly to Africa, as well as Budweiser and Carlsberg lagers.

MIDDLE EAST

IRAN plans to expand its refining capacity from 1.65 mbpd to 3.3 mbpd by 2013. NIORDC will be investing up to \$28bn to upgrade the country's existing 9 refineries and build 7 new units.

IRAN – Shell & Repsol have decided to pull out of the \$10b South Pars phases 13 and 14 gas development project. Press commentators attribute the decision to quit the project on political pressure from the US, which wants companies to boycott Iran because of the country's nuclear enrichment activities. The companies only last year signed a deal with NIOC. Shell was to have been the general contactor for the development, which was to consist of two LNG trains with a capacity of 8.1m t/y each.

IRAQ has dramatically increased the size of its crude oil reserves after new data suggested they could exceed Saudi Arabia's and be the largest in the world at 350 billion barrels, three times the previous estimate.

IRAQ - Royal Dutch Shell and the Iraqi oil ministry aim to sign a preliminary agreement this summer to establish a Joint Venture to exploit associated gas and channel it for domestic use and export. Plans include building LNG export facilities.

ASIA - PACIFIC

MALAYSIA'S government has approved plans to build an integrated oil, gas and petrochemicals complex at Manjung, in

northern Malaysia. The complex will be built by the Qatari company Gulf Petroleum (GPL) and cost \$4-5b. Of this, the petrochemicals complex will account for between \$1.5b and \$2b, as will refining, with storage facilities accounting for the remaining \$1b. The refinery is expected to have a capacity of 100,000-150,000 bbl/d.

CHINA is planning to launch a 400 MW zero-emission coal-burning power station by 2015 in the coastal city of Tianjin, Beijing. GreenGen, a consortium of energy companies controlled by state-owned power firm Huaneng Group, is tasked with funding the project and is set to spend around \$360m on the first phase of the facility's construction. The second and third phases, which will develop technology to separate and store the plant's carbon emissions, is yet to be determined a budget

AUSTRALIA - Empire Energy of the US has released expert analysis of several locations in the Australian state of Tasmania for its oil and gas reserves, estimating that eight key locations may hold up to 145m bbl of oil and 22.6b m³ of natural gas.

AFRICA

NIGERIA will see at least one new refinery under plans by Chinese companies CNOOC, CNPC and Sinopec to build a 450,000 bpd unit. Nigerian officials claim to have reached a similar agreement with India for a 2nd refinery.

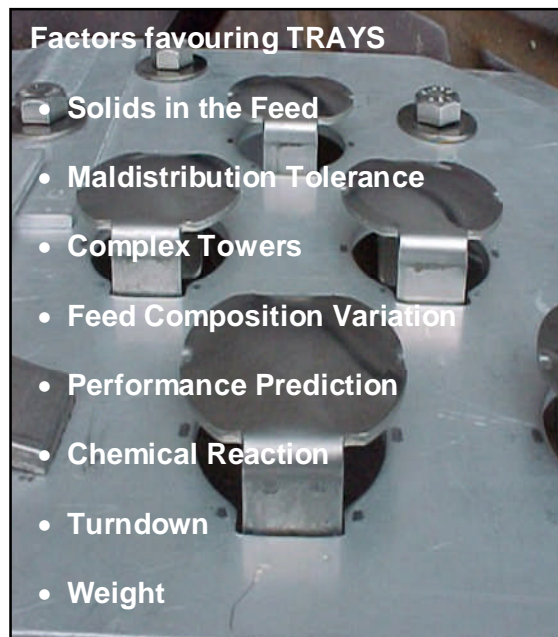
NIGERIA - Shell and ExxonMobil have been ordered to pay \$1.9b in arrears which Nigeria's president Umaru Yar'Adua says the companies owe the government under a production sharing contract (PSC) on the Bonga and Erha oilfields offshore Nigeria.

News items courtesy www.the-eic.com and www.tcetoday.com



Feature: Trays or Packing...

Most mass transfer separations can be performed with either trays or packings. The factors below offer some general economic pros and cons that favour each type, but may be overridden based on experience.



RANDOM PACKING LIMITATIONS

Low Liquid Rates

Process Surges

STRUCTURED PACKING LIMITATIONS

Packing Fires

Column Wall Inspection

High Liquid Rates

Cleaning, Washing & Purging

CAPACITY & EFFICIENCY

Based on flow parameter $L/G (\rho_G/\rho_L)^{0.5}$

Flow Parameter 0.02 to 0.1

1. Trays and random packings have much the same efficiency / capacity
2. Structured packing efficiency is 1.5 times greater
3. At a factor of 0.02, SP capacity is about 1.3 to 1.4 times RP or trays; this advantage disappears towards 0.1

Flow Parameter 0.1 to 0.3

1. Trays and RP have about the same capacity and efficiency
2. SP has about the same capacity
3. The SP efficiency advantage decreases from 1.5 to 1.2 as the parameter increases to 0.3

Flow Parameter 0.3 to 0.5

1. RP has highest capacity and efficiency, with trays just behind. SP has lowest performance

With due acknowledgment to Perry's Chem Eng Handbook, 8th Ed; Section 14; where more information can be found.