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CHTA Secretariat

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The Contract Heat Treatment Association is not responsible for the statements made or opinions expressed by contributors to *Hotline*.



CHTA is affiliated to the Surface Engineering Association

CHTA AGM 2014



In his May 8th AGM report, Chairman **Simon Blantern** focused on CHTA's progress with training, the recently-released mutual non-disclosure agreement, our increasingly-publicised website, *Hotline* and a possible CHTA-co-ordinated supplier event (see page 9). He then invited SEA's Dave Elliott to update on...

Climate Change Levy exemption for heat treatment

The Climate Change Levy (CCL) was introduced on 1 April 2001. Its main rates apply to electricity, natural gas, solid fuels and liquid petroleum gas when used as fuels by business and public-sector consumers. The purpose of the tax is to encourage energy efficiency.

The Government announced at Budget 2013 that it would introduce exemptions from the main rates of CCL for energy used in mineralogical and metallurgical processes, including heat treatment, from 1 April 2014. The measure will ensure the UK tax treatment of highly energy-intensive processes is in line with tax treatments elsewhere in the EU, thereby reducing any distortion of competition.

In order to simplify the application of the exemptions and to maximise the benefit to industry, mineralogical and metallurgical processes are defined as those involved in the manufacture of mineralogical or metallurgical products, and all uses of taxable commodities incurred in the manufacture of such products will be included in the

Continued on page 3...



Author Dave Elliott, CEO of the Surface Engineering Association



Guido Plicht
Industry Manager,
Metals Processing

Ask the expert

Q How can I improve my carburising process using nitrogen/methanol?

A The nitrogen/methanol route is broadly accepted by the heat treatment industry because of several process advantages over endothermic generated atmospheres. However, operators sometimes face challenges with methanol cracking due to the incorrect positioning and method of nitrogen/methanol injection into the furnace. Air Products' specialists can help you in choosing the right injection technique and location for the nitrogen/methanol blend, ensuring the mixture is optimised to deliver high-quality parts and reduced operating costs.

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Climate Change Levy exemption for heat treatment

Continued from page 1...

scope of the exemption.

The products themselves will be defined using the NACE code system. In some cases, it is not appropriate to define the exemption by reference to the manufacture of a product; for instance galvanising, which is a metallurgical process applied to fabricated steel goods. However, the bulk of the exemptions are product-based.

Businesses that currently participate in the Climate Change Agreement (CCA) scheme, and become wholly exempt from the main rates of CCL as a result of the introduction of these new exemptions, may choose to withdraw from the CCA scheme. However, where businesses continue to derive a benefit from the CCA scheme (because not all of their energy use will qualify for the new CCL exemptions), they will be able to retain their agreements.

To avoid the unintended consequence that businesses withdrawing from the CCA scheme will become liable to enrol in the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, an exemption from the CRC scheme will be introduced that mirrors the scope of these new CCL exemptions.

Claiming full CCL exemption

To obtain the full exemption, heat treatment companies should complete a new PP10 form (reproduced in part here) indicating that the exemption is for mineralogical and/or metallurgical process.

Completion of the first page is very straightforward. Boxes 1 to 6 are self-explanatory and, in box 7, you just tick either gas or electricity – remember it is a separate form for each type of energy. In box 8 you put 100% and box 9, 1st April 2014. In box 10 tick “Amendment” and box 11 is normally kWh, but that depends on your business and how you are invoiced. Page 2 is equally straightforward. The total amount of energy (gas or electricity) used goes in box 12a, the same amount in

Extracts from Form PP10 (HMRC 03/14)



Climate Change Levy Relief supporting analysis

When to use this form

You should use this form to:

- give us details to support your certificate of entitlement to relief from the main rates of Climate Change Levy (CCL)
- work out the total percentage relief to use on the form PP11 ‘Climate Change Levy supplier certificate’.

Page 1

Details of relief claimed

7 Which commodity do you want to claim relief on?
Tick one box only
If you want to claim relief on more than one commodity, you must complete a separate form for each

Gas Electricity
LPG Solid fuel

10 What is the reason for submitting this form?
Tick one box only

New certificate Annual review
Change of supplier Amendment
Five-year deadline

8 Total percentage relief from CCL applicable to taxable commodity identified at question 7

a %

b % Please refer to PP11 Climate Change Levy supplier certificate

11 Which unit of measurement have you used for the commodity given in question 7?

kwh kilowatt hours thm Therms
gwh gigawatt hours l litres
kg kilograms hl hectolitres
mwh megawatt hours t tonnes

9 Date from which relief applies DD MM YYYY

Page 2

Taxable commodities on which relief is claimed

12 Enter the total quantity of the commodity supplied to the site entered in question 6 in line ‘a’ and the quantities used for the relieved or exempt purposes in lines ‘b’ to ‘k’

| | | Quantity |
|--|----|----------|
| Total quantity of taxable commodity supplied to the site in question 6 | a | |
| Community heating scheme | *b | |
| Transport | *c | |
| Commodity producer | *d | |
| Not used for fuel | *e | |
| Export or onward supply | *f | |
| Electricity producers for generating stations with a capacity greater than 2MW | *g | |
| Supply for CHPs please remember to give your CHPQA scheme reference number in box 13a below | *h | |
| Mineralogical and/or metallurgical processes | *i | |
| Reduced rate please remember to give your CCA unique facility number in box 13c below | j | |
| Total claimable for reduced rate | *k | |
| Total quantity of relief claimable add together the figures you have entered in the lines marked with an * | l | |

box 12i and the same amount again in box 12l. Section 13 can be left blank; then simply sign and date and send to HMRC at the address shown. Don't forget to send a completed PP11 to your energy supply and then your energy bills will be CCL exempt.

FURTHER INFORMATION:

HMRC's "Exemptions from climate change levy for mineralogical and metallurgical processes: guidance for claimants" (19 March 2014) can be downloaded from www.hmrc.gov.uk/climate-change-levy/.

CHTA WEBSITE

For the best in subcontract heat treatment services, go to . . .

www.chta.co.uk

. . . your guide to sourcing from some 60 UK-wide heat treatment specialists



LOOKING FOR SPECIFIC HEAT TREATMENT CAPACITY?

Where a job is proving difficult to source, the "Ask the Members" page on CHTA's website allows the visitor to ask all CHTA members if they have appropriate capacity. Once submitted, such an enquiry is e-forwarded to members instantly; any able to help reply directly.

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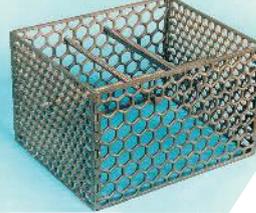
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Calculation of heat-treating costs

Do manufacturers know the true cost of in-house heat treatment?

A view long held by CHTA and its members was reaffirmed by **Jon Dossett**, a metallurgical engineer with over 48 years' experience in USA heat treating, in his introduction to an article in a recent edition of Industrial Heating magazine...



"The first half of my career as a metallurgist and heat-treat manager was spent in captive heat treating. There, the heat-treating costs were determined by corporate accountants who generally got the costs totally wrong. They used many averages and allocated most of the cost components without using costs associated directly with the specific operation or process.

As an example, energy costs were allocated by the square feet the heat treat occupied rather than using the fact that about 90% of the plant energy costs was used in the heat treat, even though it occupied only 5% of the area of the plant. This resulted in an average cost for carburising of \$0.04/pound in the early 1970s. Local commercial heat-treating shops (that probably were closer to the actual cost) were typically charging \$0.15-0.30/pound for carburising of the same materials and case depths.

Later, as manager of a commercial heat-treating operation, where errors in heat-treat pricing could affect the very success and profitability of the company, accurate pricing was an important issue.

In this experience, the company had pages and pages of prices by the pound for each of the many treatments that were offered. Every year, the individual price sheets were multiplied by an inflation factor and re-issued. When questioned, those responsible for quotations and pricing were not sure how most of the prices were originally derived, but "the prices had been determined several years ago and then annually updated."

Jon then goes on to describe, in depth: "...the development of a simple, cost/pricing system that would be reasonably accurate and could easily be recalculated if the yearly costs of any of the basic cost components change. The costs could then

The Contract Heat Treatment Association Newsletter

Issue No. 107
March 2007

HOTLINE

What cost in-house heat treatment?

Hotline 106's theme "Why use contract heat treatment?" resurrected an oft-posed question: do manufacturers know the true cost of heat treating in-house?

The Contract Heat Treatment Association gave priority to addressing the question way back in its early years. A 1975 CHTA publication, offering guidance to engineering companies operating their own processing facilities, featured the exercise reproduced below. Nowadays, we might be inclined to factor in other costs such as those associated with modern QA systems, health and safety, environment and training. Doing so renders the concluding message even more valid!

DO YOU KNOW THE TRUE COST OF YOUR HEAT TREATMENT?

The few minutes it takes to complete the cost exercise could be the most profitable you have spent for some time.

Enter in the boxes below your plant costs
(or the anticipated cost of setting up your own heat treatment unit).

| | |
|---|----------------------|
| Capital cost - spread over, say, 5 years (include furnace(s) and all ancillary equipment and installation charges). Show annual cost. | <input type="text"/> |
| Interest Take an average of the rate payable over the period and enter the annual cost. | <input type="text"/> |
| Labour Direct (per annum) Indirect (including supervisory, lab. costs, inspection etc.) | <input type="text"/> |
| Repairs and maintenance Show annual cost averaged over 5 years. Include lost production during shutdown. | <input type="text"/> |
| Consumables Include quench oils, salt, gases, cleaning agents, thermocouples, work containers etc | <input type="text"/> |
| Insurance - for plant and premises | <input type="text"/> |
| Space Show share of rates, overheads etc. to be borne by heat treatment total work area. | <input type="text"/> |
| Utilities Electricity, gas, oil and/or other fuel, water etc. | <input type="text"/> |
| Idling time Costs of maintaining temperature during non-productive time (i.e. weekends, holidays etc.) | <input type="text"/> |
| Scrap and rework - a very real cost. | <input type="text"/> |
| TOTAL | <input type="text"/> |

Divide this total by the estimated throughput to arrive at a cost per kg/component.

NOW ASK YOUR LOCAL CONTRACT HEAT TREATMENT ASSOCIATION MEMBER FOR A QUOTATION - YOU MAY BE PLEASANTLY SURPRISED

Since CHTA's inception, Hotline has urged in-house heat treaters to ascertain true costs.

be accurately assigned to the hourly cost of operation for each piece of equipment or similar groups of equipment.

An advantage of the system would be that, if the loading characteristics of individual parts and the process cycle are known, one could accurately determine the required price per piece or price per pound for that equipment and process.

Another advantage of the system would be that if there is a record made of the actual total hours of operation per year for each piece of equipment, simple calculations could then be made to cross-check the calculated sales (using the equipment-hour rates) to actual total sales. Shortfalls in pricing for specific equipment or processes could then be identified for possible corrective action."

The full article, "Calculation of Heat-treating Costs", from the March 2014 edition of Industrial Heating, can be downloaded from:

www.industrialheating.com/articles/91556-calculation-of-heat-treating-costs
A free subscription to the digital version of the monthly Industrial Heating magazine can be obtained by clicking on "Subscribe now!" at: www.industrialheating.com

Hotline 136

5

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Also seen at CHTA's 2014 AGM...



Guest Chris Dungey (Manufacturing Technology Centre) spoke on "The Role of the MTC as a High-value Manufacturing Catapult". Here he is flanked by CHTA Chairman Simon Blantern (Bodycote) and Secretary Alan J Hick (right).



Peter Stokes (Century Heat Treatment & Plating), Paul Handley (Heat Treatment 2000), newly-elected CHTA Management Committee member Mike Leach (Alpha-Rowen) and Debbie Mellor (Keighley Laboratories).



Frank Butler (Alloy Heat Treatment), Les Hickens and Dave Lawrence (both Beta Heat Treatment), Chris Kenward and Simon Cockfield (both AjaxTOCCO International) and Mark Florance (Techniques Surfaces UK).



Newly-elected CHTA Management Committee member Simon Day (ADI Treatments), Andy Borg (TTI Group), Peter Carpenter (Wallwork Heat Treatment) and Keith Laing (TTI Group).



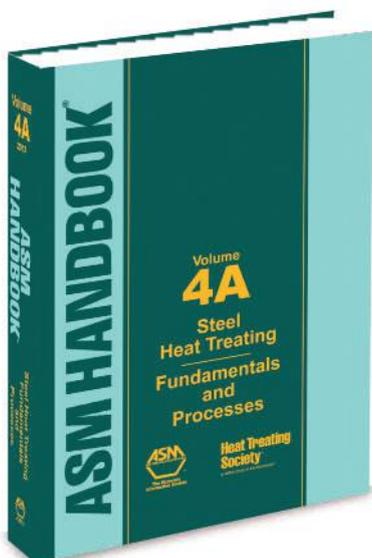
Simeon Collins and Richard Burslem (both Wallwork Heat Treatment), Peter Fletcher (Holt Brothers (Halifax)) and John Jervis (Bodycote Heat Treatments).



CHTA auditor Phil Taylor (Bakers), Ian Griffin and Tim Pelari (both Wallwork Heat Treatment) and guest Derek Close (Wolfson Heat Treatment Centre).

INFORMATION

Heat treater's "bible" revised



Co-author of the ASM book *Practical Heat Treating*, Jon Dossett, whose recent article

is highlighted on page 5, has been collaborating, as co-editor with Dr George Totten, in the mighty task of updating *ASM Handbook, Volume 4: Heat Treating*. Coverage is being expanded and the recently-published *ASM Handbook, Volume 4A: Steel Heat Treating Fundamentals and Processes*, is the first of multiple volumes on heat treating.

With some 970 pages (with index) and 50 articles, *Volume 4A* introduces the basics of steel heat treating and considers the many processes in-depth. Coverage includes:

- Physical metallurgy of steel heat treatment.
- Fundamentals of steel hardness and hardenability.
- Practical aspects of hardenability as a key criterion in the selection of steel.
- Hardenability calculations and the use of hardenability data.
- Fundamentals and practical aspects of steel quenching.
- Expanded coverage on quenching processes.

- Updates and expansion on annealing, tempering, austempering and mar-tempering.
- New articles on cleaning, subcritical annealing, austenitising and quench partitioning of steel heat treatment.
- Significant expansion on the fundamental and applied aspects of surface hardening by applied energy, carburising, carbonitriding, nitriding and diffusion coatings.

Other volumes of this revised *ASM Handbook* include:

- *Volume 4B: Steel Heat Treating Technologies* (to be published in October 2014).
- *Volume 4C: Induction Heating and Heat Treatment* (published in June 2014).
- *Volume 4D: Heat Treating of Irons and Steels* (to be published in October 2014).
- *Volume 4E: Heat Treating of Non-ferrous Alloys* (to be published in 2016).

For further details re Volumes 4A and 4C, go to www.asminternational.org/store. (ASM Handbooks are also available via Amazon)



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Member news

NEW NITRIDING AND NITROCARBURISING FURNACES NOW IN PLACE

Work on the final phase of Keighley Laboratories' ambitious new heat treatment facility is nearing completion, with its state-of-the-art nitriding furnace newly commissioned and undergoing production trials and its sealed-quench gaseous nitrocarburising unit currently being installed. Ancillary process equipment, including a solvent degreaser and pre- and post-treatment washers for removing any surface contaminants, are also being integrated into the streamlined workflow arrangement.

Housed in a 5000ft² purpose-built department, the £1million-plus development adds the latest low-temperature low-distortion thermochemical processes to the Keighley Labs' heat treatment portfolio. It will meet more sophisticated surface engineering requirements for the existing customer base in the railway, mining, oil/gas and general engineering sectors, whilst opening up new applications in the aviation, nuclear power and renewable energy markets.

In due course, the West Yorkshire company is hoping to gain Nadcap accreditation for this new department, to match the Materials Testing Laboratory accredited status for its Technical Services division.

"With the new vertical pit gaseous nitriding facility up and running, we shall have amongst the best, most up-to-date low-temperature low-distortion resource in the independent heat treatment sector, with the very latest process control software," says Michael Emmott, Divisional Commercial Director for Keighley Laboratories Heat Treatment division. "We've had a lot of interest from customers wanting to send jobs for processing already, but we wanted to conduct sufficient trial runs in order to obtain repetitive results, which will ensure meeting the quality and precision standards that the industry expects of Keighley Laboratories."

The furnace interface is via the latest *SuperData* SCADA software package,



Delivery of Keighley Labs' new pit nitriders

CHTA Suppliers Day?

There has not been a major heat treatment conference/exhibition in England since the last in the series of *Furnaces* events in 2003.

Thinking lower profile, CHTA's Management Committee is looking into the possibility of staging an open "Suppliers Day" where invited technical talks will be presented alongside desktop displays by suppliers to our industry.

Before detailed planning, a feel for the level of support likely for such an event would be most helpful. Accordingly, **CHTA would welcome input answering the following questions:**

Suppliers:

- Would you be interested in having a desktop display?
- Would you be interested in presenting a short technical talk on an innovation in our technology? Please indicate subject proposed.

CHTA members:

- Would you be likely to attend such an event?
- Would you be interested in presenting a short technical talk on an innovation in our technology? Please indicate subject proposed.

Non-CHTA-members:

- Would you be likely to attend such an event?

Responses please to CHTA's Secretary at mail@chta.co.uk.

complete with full-colour HMI touchscreen. This provides recipe-driven process control, continuous data logging, an *EasyTrack* load entry system, paperless recording and rapid access to historical records. Accurate temperature control is achieved by three zones of heating elements, regulated by a sophisticated internal cascade system. SSI technicians have delivered on-site software training, so that Keighley Labs specialists can adjust the basic programming to suit the company's own processing routes.

With the Ipsen TQ7 gas-fired sealed-quench furnace, the new heat treatment department will also offer both ferritic and austenitic nitrocarburising, the latter enhancing indentation resistance. Both methods can be used for upgrading components made from relatively inexpensive lower-alloy materials. The load-bearing characteristics and other beneficial properties imparted by these

treatments make them typically ideal for rail industry components, bearing shafts, cams and crankshafts.

For their new processes, Keighley Labs envisage treating a wide variety of components, helping to substantially improve wear resistance, fatigue life and anti-corrosion properties. Both low-distortion techniques mean that finishing operations can be eliminated or minimised.

WALLWORK'S NEW ENGINEERING DIRECTOR

The Wallwork Group has appointed Mike Jarvis director of engineering, responsible for energy management and environmental systems along with selection, installation and maintenance of plant on four sites.

"In 2008 we were among the first companies in the heat treatment and surface engineering business to successfully implement the ISO 14001 environmental standard. Embracing environmental awareness has served the company well, as energy costs have increased. Wallwork is achieving higher efficiency in energy use and is implementing a progressive policy for more reduction. This is a strong driver for competitiveness in all our processes," Mike explained.

"The technology of surface engineering is also advancing constantly and I have been involved in every phase of development," Mike noted. "Wallwork is a company that is committed to research and development. Reinvestment means we are continuously upgrading our plant and facilities to meet the needs of aerospace, motorsport, medical-device and other high-technology industries. Every new process is carefully audited to ensure that we are as energy efficient as possible."

Mike joined Wallwork in 1990, as an apprentice on the maintenance team. By part-time study at Bury College he became a qualified electrical and mechanical engineer. Promotion followed to group project engineer, responsible for the installation of vacuum heat treatment furnaces at three sites, and then chief engineer at the Bury location.

Mike is in the process of a business studies qualification to broaden his management



Wallwork technical director Peter Carpenter (left) congratulates Mike Jarvis on his appointment.

skills. "Wallwork has provided me with a rewarding career and I look forward to future challenges and being part of an enthusiastic and forward-looking senior management team."



NEW DEDICATED UNIT FOR VACUUM BRAZING

Surface engineering specialist Tecvac has established a dedicated cell for production of complex components by vacuum brazing. The unit is designed to braze 'one-off' and development components, but also has the capacity to produce high volumes of commercial parts using vacuum furnaces of varying size.

Tecvac currently provide vacuum brazing services to key technology sectors such as aerospace, motorsport, medical devices, instrumentation, vacuum equipment and the oil and gas.

"We have a highly-skilled team who are able to assemble the most intricate components, comprising scores of parts, with precision. Joining under vacuum requires no flux and the process is controlled so that the finished assemblies produced are clean and dimensionally accurate every time, requiring no further finishing operations," explained site director Simeon Collins.

Each project is carefully evaluated and Tecvac select braze materials and develop a bespoke process, for assembly, furnace control and final testing, that are appropriate to the needs of the customer. With extensive metallurgical laboratories and operating an ISO 9100 aerospace-standard quality assurance system, the company can deliver a quality product every time. They also welcome individual company inspection and accreditation.

Supplier news

CODERE MODULAR SALT-QUENCH SYSTEMS

Switzerland-based Hotline advertiser Codere supplies a broad range of industrial heat treatment equipment and control/measurement systems, as their website (www.codere.ch) illustrates. Here the company's David Howard highlights Codere's approach to a process which has increased in demand on the continent recently...

Codere offers a wide range of solutions to meet heat treatment requirements. Specialising in manufacturing a range of customised industrial furnaces controlled under protective atmosphere (batch, pit and pusher type furnaces), the company is active worldwide in a number of fields, including the automotive, aeronautic, fastener, tooling, spring, precious-metal, medical, optical, armament and hydraulic industries, as well as serving a number of international contract heat treatment shops.

Molten salt mixtures applied for quenching in modern heat treatment lines lead to many advantages due to their chemical composition, high/uniform rate of heat transfer and the flexibility of being used over a wide range of quenching temperatures (from 170-400°C).

Whilst this medium facilitates classical martensitic quenching processes on structural and tool steels, it also constitutes the exclusive industrial solution for austempering treatments that demand optimum quench performance in, for example, the treatment of bearing steels and ADI components.

With physical separation between high-temperature furnace and quench tank, Codere modular installations offer the ability to austenitise under protective (endo) gas and transfer and direct quench the load, without temperature loss or contact with air, while meeting all environmental norms.

Our treatment lines follow all the constraints required for these applications: working in clean and safe conditions; austenitising (or carburising) without pollution of salt; dimensioning and design of the quench tank with various possibilities; salt eliminated during washing process and recycled after recovery (inverse cascade system).

Codere have practical examples (loads from as small as 6kg up to 10 tonne weight, with final results on mechanical properties and distortion comparisons with oil) as well as the potential for development and evolution of our technology associated with this quenching process.

For more information, contact David Howard (e-mail d.howard@codere.ch; telephone: 0041 32 4651010).



Benevolent Society seeking industry beneficiaries

Finding itself in the position of having funds to allocate, the BATF Benevolent Society has announced that it is seeking new beneficiaries from the surface engineering and associated industries (including CHTA members).

The Benevolent Society is the long-established registered charity of the British Allied Trades Federation (BATF), of which the Surface Engineering Association is a founding member. It is seeking people, that once worked in the surface engineering, heat treatment, jewellery, giftware and leather goods industries, who have fallen on hard times and may need modest financial assistance.

The Society is funded by donations from companies within the BATF and also receives money from the proceeds of the annual Benevolent Society Ball, held each December. Last year's event raised £23,000 for the Benevolent Society.

The Society's vice-chairman David Doyle said: "We are currently in the fortunate position of having funds to allocate and are looking for new beneficiaries whom we can assist with the purchase of essential household items, such as cookers, washing machines and fridges, as well as being able to provide grants for medical requirements such as mobility scooters and wheelchairs."

The Society can also offer suitable candidates money to meet utility bills and bad debts. In some cases regular financial support, in the form of a grant, is provided, as well as interest-free loans.

The Society says it is still on the lookout for new companies to pledge money towards its funds, and hopes to attract a wider audience to its annual ball, which takes place in Solihull in early December.

Doyle added: "This is an excellent opportunity to take customers or suppliers as well as being a great place to entertain friends from outside the industry or to stage a staff Christmas party. There will be varied entertainment throughout the evening; I can guarantee a great time.

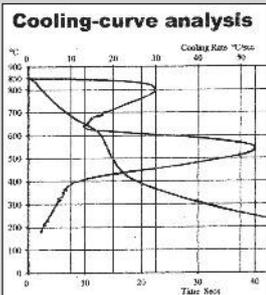
"Absolutely nothing goes on expenses so it is a very effective way to give and you can guarantee that your money is going to those who need it most. For those of us fortunate enough to have prospered in our industry, this is a wonderful way to give something back to those who have not," Doyle added.

Those interested in working with the Benevolent Society can contact Lynn Sneed on 0121 745 4613 or visit www.batf.uk.com/en/benevolent-society.

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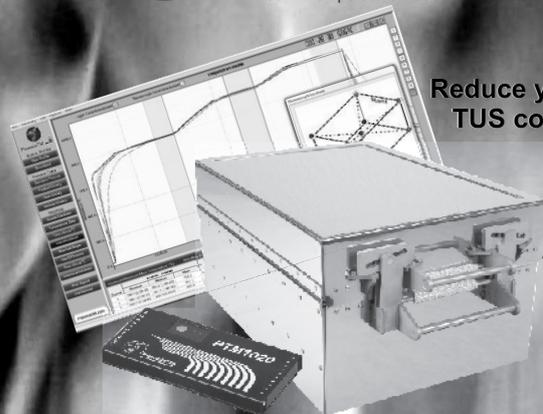
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- Unique patented quench transfer with no intermediate chamber increases security in modular construction (Add one furnace to double production)
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www.youtube.com/codere123

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Diary

June 16-18 2014
5TH INTERNATIONAL CONFERENCE ON THERMAL PROCESS MODELING AND COMPUTER SIMULATION
 Orlando, Florida, USA
www.asminternational.org/content/Events/modeling/index.jsp

June 16-18 2014
FURNACES & ATMOSPHERES FOR TODAY'S TECHNOLOGY
 Meadville, PA, USA
www.secowarwick.com/en/infocenter/events/

June 18 2014
2ND HEAT TREATMENT CONGRESS
 Querétaro, Mexico
www.metalspain.com/mexico-2014-english.htm

July 14-20 2014
FARNBOROUGH INTERNATIONAL AIRSHOW
 Farnborough, England www.farnborough.com

July 17 2014
CHTA PUBLICITY SUBCOMMITTEE*
 Birmingham, England

July 22 2014
PRINCIPLES OF HEAT TREATMENT
 Rotherham, England www.amrctraining.co.uk

July 24 2014
PRINCIPLES OF HEAT TREATMENT
 Alcester, England www.amrctraining.co.uk

July 31 2014
CHTA MANAGEMENT COMMITTEE*
 Birmingham, England

September 8-9 2014
INTRODUCTION TO PYROMETRY
 Sheffield, England
www.equalearn.com/learncenter.asp?id=178409

September 9-11 2014
HEAT TREATMENT 2014
 Moscow, Russia
 8th international specialised exhibition: held annually, the only exhibition of thermal equipment and technologies in Russia.
www.htexporus.com/

October 6-8 2014
FURNACES NORTH AMERICA 2014
 Nashville, TN, USA
 The Metal Treating Institute's conference / exposition:
www.furnacesnorthamerica.com

October 14-16 2014
UNDERSTANDING HEAT TREATMENT
 Birmingham, England
 79th repeat of Wolfson Heat Treatment Centre's course. Details from Derek Close: tel: 0121 237 1122; e-mail: derek.close@sea.org.uk; www.sea.org.uk/whct

October 17 2014
SEA AWARDS
 London, England www.sea.org.uk

October 22-24 2014
70TH HÄRTEREIKONGRESS
 Cologne, Germany
 New venue for the heat treatment congress/exhibition, with simultaneous German/English translation:
www.hk-awt.de

October 23 2014
CHTA PUBLICITY SUBCOMMITTEE*
 Birmingham, England

October 27-28 2014
NADCAP AUDIT PREPARATION – HEAT TREATING
 Birmingham, England
www.equalearn.com/learncenter.asp?id=17849

October 29-30 2014
INTRODUCTION TO PYROMETRY
 Birmingham, England
www.equalearn.com/learncenter.asp?id=178409

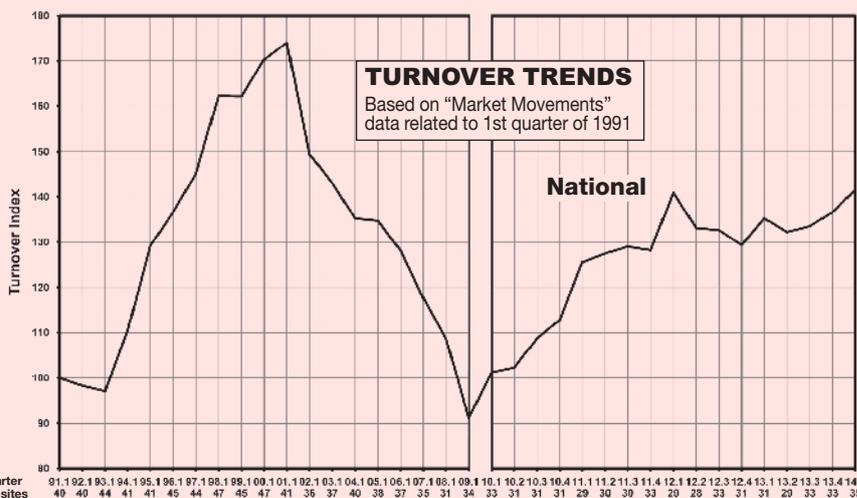
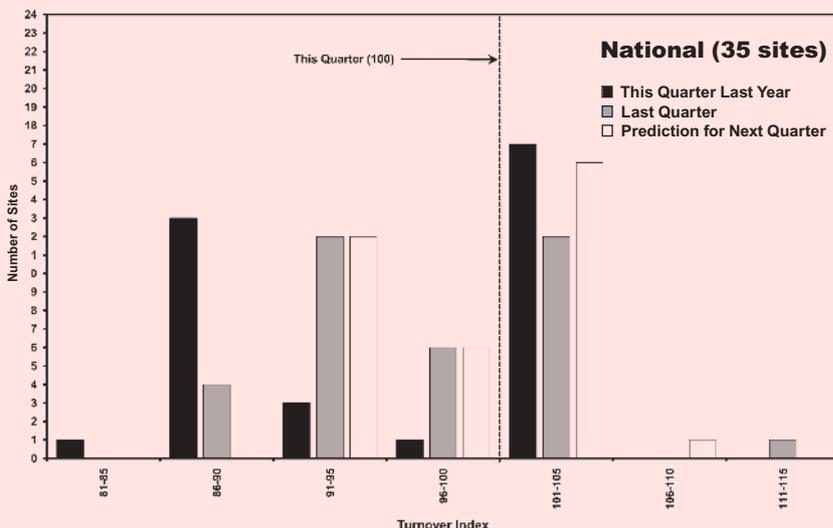
*Members wishing issues to be raised at CHTA meetings should notify CHTA's Secretary, well beforehand, at mail@chta.co.uk

Market Movements

ANALYSIS OF QUESTIONNAIRE REPLIES RELATING TO 35 CHTA MEMBER SITES

“THIS QUARTER” =
1 JANUARY –
31 MARCH 2014
= TURNOVER INDEX 100

| OVERALL ANALYSIS (35 SITES) | Mean index |
|-----------------------------|-------------|
| This quarter last year | 96.4 |
| Last quarter | 96.5 |
| Predicted next quarter | 99.1 |



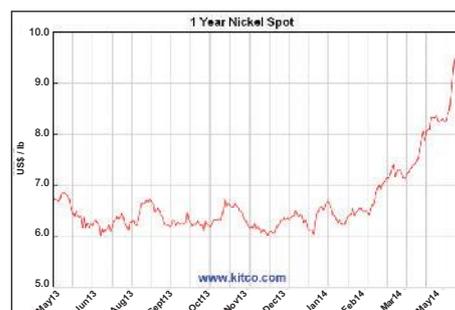
STATESIDE STATS

NORTH AMERICAN FIRST-QUARTER SALES UP 2.1%

CHTA counterparts participating in the Metal Treating Institute's Monthly Sales Statistics Program reported year-to-date heat-treating sales for March 2014 of \$223.0million, an increase of 2.1% from the \$218.4million recorded for the January-March period of 2013. March billings amounted to \$80.4million, a rise of 4.2% compared with March 2013's \$77.2million.

The latest returns indicate April sales of \$79.2million, an increase of 2.4% from April last year when billings amounted to \$77.4million.

NICKEL PRICE (US\$/lb)



Please send comment and news items for September's Hotline 137 to: mail@chta.co.uk Deadline: August 20th