

FREEFLOW

THE DYNAMICS OF A GLOBAL ACRYLICS BUSINESS

No.3

WELCOME
TO THE THIRD EDITION OF
FREEFLOW, OUR PUBLICATION
AIMED AT THE METHACRYLATE
MONOMERS INDUSTRY IN
EUROPE.



Peter Snodgrass
Sales Director, Europe

Lucite International is committed to supporting its customers and partners in the Methacrylate sector. Our aim is to share our thoughts, address issues and, through FreeFlow and being pro-active in the market place, make all that we can of the exciting opportunities in our industry.

The themes of innovation and progress feature strongly in our third issue of FreeFlow. First, we are delighted to report on Alpha 1, our brand new facility in Singapore that is now in the advanced stages of construction scheduled for commissioning later this year. Alpha 1 is the first in a series of world-scale plants based on Lucite International's patented technology route to MMA, which liberates the industry from its traditional dependence on Acetone, Hydrocyanic acid and Isobutylene. We are especially proud of the construction site's safety record - 3,009,781 man-hours without a lost-time incident at 25 March 2008.

Continuing with the theme of innovation, we share with you a profile on Scheer Surface Solutions, one of our important customers in Germany, which emerged from the Schock organisation in 2006. It's owner, successful entrepreneur and businessman, Dr Udo Scheer has a keen eye for opportunities and his design-led, surface products that go beyond the everyday are already proving a great success. Our thanks go to Dr Scheer for agreeing to be a part of this issue of FreeFlow.

Finally, we turn to Safety. As our number one value, it is here where Lucite International continually seeks to progress. We share with you some of our current thinking, the ways in which we try to learn from incidents both inside and outside of our Company and take a look at our recent safety attainments. We are also delighted to provide you will a free copy of REACH for Downstream Users of Substances, which has been put together by our REACH Manager, Fiona Smith. I hope you find the guide useful and that you enjoy this issue of FreeFlow. As always, we are keen to ensure FreeFlow adds value, so please do let me know if there are any specific issues you would like us to address in our next issue by emailing me direct on: peter.snodgrass@lucite.com

LOOKING FORWARD

2008 – AN EXCITING YEAR FOR LUCITE INTERNATIONAL

2008 IS GOING TO BE AN EXCITING YEAR FOR LUCITE INTERNATIONAL (LI). IN PARTICULAR, WE ARE LOOKING FORWARD TO THE COMMISSIONING OF OUR BRAND NEW ALPHA 1 PLANT IN SINGAPORE, WHICH WILL HELP US TO CAPITALISE ON THE HEALTHY GROWTH OF THE METHACRYLATES MARKET, AND STRENGTHEN OUR POSITION AS THE WORLD'S NUMBER ONE SUPPLIER OF MMA.

"This is our first Alpha-based technology unit, which uses Ethylene, Carbon Monoxide and Methanol together with our new, patented technology to produce MMA. Without the potentially limiting factors of the two existing ACH and C4 process routes, Alpha will enable us to meet the growing demand for MMA. It will also help us guarantee efficient supply for our customers, which in turn will allow us to grow our businesses with confidence together.

"At LI, we strive for world-class performance across all our operations. Our number one priority is Safety and during 2007 we achieved our best-ever performance, with 11 out of a total 13 manufacturing sites being injury free. I am especially proud to be able to announce that our Alpha construction site has reached more than 3m injury-free hours. This has been made possible by the shared dedication of our construction

partners and the on-site team, who have kept safety at the very top of their agenda throughout. All of this is great news, but we are never complacent and we welcome open discussions with our customers on this, and any of the other issues that affect our industry.

"Looking ahead, the next twelve months will also provide us all with some significant challenges as we manage the effects of a volatile economic climate and an oil price flexing at US\$100/bl. These external factors affect all of us through the supply chain and, if we are to succeed and grow during this difficult time, we know that close working partnerships are key. Our job is to focus on good practices, improvement and opportunities and our ability to do this effectively will be a real differentiator, as it has been in the past."



[1]

Image: [1] Neil Sayers, Vice President of EAME Region and Technology, [2] The Alpha MMA reaction and refining units are captured on site. Construction work continues with the commissioning phase due to begin later in 2008.



[2]

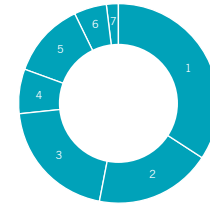
TAKING A CLOSER LOOK AT THE MMA MARKET



Image: Malcolm Kidd is LI's Commercial Director for Monomers in the EAME region. To access his regular three monthly review of the MMA market, please visit: www.luciteinternational.com/freeflowmarket

LUCITE INTERNATIONAL (LI) HAS A STRONG COMMITMENT TO DELIVERING A RELIABLE AND HIGH QUALITY SUPPLY SERVICE TO ITS CUSTOMERS IN THE MMA MERCHANT MARKET. THIS SERVICE EXTENDS BEYOND DELIVERING PRODUCTS THAT MEET CUSTOMERS' NEEDS ON TIME, AND IN FULL TO ENSURING THAT IT ADDS VALUE WHEREVER IT IS POSSIBLE TO DO SO. WITH THIS IN MIND, WE ARE PLEASED TO BE ABLE TO SHARE OUR UNDERSTANDING OF THE MMA MARKET DYNAMICS SO THAT OUR CUSTOMERS AND PARTNERS CAN APPRECIATE THE TRADING CONDITIONS WE FACE TOGETHER. WITH MORE THAN 25% MARKET SHARE AND A GLOBAL SPREAD THAT ENCOMPASSES THE US, ASIA AND EUROPE, WE BELIEVE THAT OUR WORLD-CLASS SYSTEMS AND LOCAL MARKET INTELLIGENCE PROVIDE THE BEST POSSIBLE FORECASTING AND PLANNING TOOLS TO UNDERPIN EFFECTIVE SUPPLY. HERE, MMA BUSINESS DIRECTOR, MALCOLM KIDD, SHARES HIS THOUGHTS ON THE CURRENT MARKET DYNAMICS AND OUTLOOK FOR 2008.

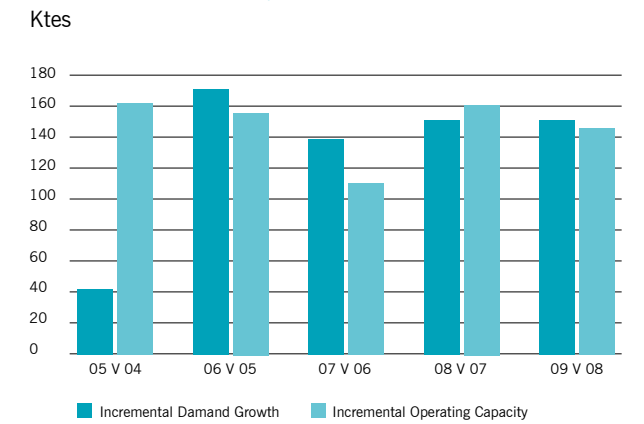
DOWNSTREAM MMA USE IN A MATURE MARKET



Key application areas:

- 35%** Acrylic sheet for glazing, fabrication, signs, lighting and sanitary ware
- 19%** Moulding/extrusion compounds automotive, medical and optical
- 20%** Surface coatings, acrylic latexes, lacquers and enamels
- 7%** Emulsion polymers, adhesives and polishes
- 12%** Impact modifiers and processing aids for rigid PVC window and other profiles
- 5%** Mineral filled sheet, Corian (DuPont trade mark)
- 2%** Other polyesters and transesterification

GLOBAL MMA DEMAND/CAPACITY CHANGES 2005-2009



“MMA DEMAND CONTINUES TO BE ROBUST IN THE FIRST QUARTER OF 2008 AND THE OUTLOOK FOR THE REST OF 2008 IS POSITIVE, IF A LITTLE MORE CAUTIOUS THAN AT THIS TIME 12 MONTHS AGO.”

ANOTHER STRONG YEAR FOR GROWTH IN MMA DEMAND

Statistics show that 2007 was another strong year for MMA. Global demand increased by over 5% to 2.9mmtes; the highest growth came from Asia with Europe also contributing a strong performance. The major European economies remained buoyant all year and the developing countries within the region, particularly those in Central and Eastern Europe, maintained their rapid expansion. This environment resulted in a total increase in MMA demand for the Europe, Africa and Middle East (EAME) region of above 4.5% over that of 2006.

2008 OUTLOOK IS STILL POSITIVE

The impact of the well-publicised slow-down of the US economy, and the squeeze on money lending is not having the same pronounced effect in Europe as in the US. Some reports suggest that the impact in the European region will be dampened compared to the US, however, the influence of the weaker US currency is encouraging imports. Some slower indigenous demand growth is becoming apparent in a few specific areas. MMA demand continues to be robust in the first quarter of 2008 and the outlook for the rest of 2008 is positive, if a little more cautious than at this time 12 months ago.

NEW BUILD PROCEEDING TO PLAN

New MMA projects continue as planned with the plant in Korea coming on-line successfully in November 2007, and the first new plant in Singapore to be commissioned within the next few months, followed by Lucite International's 'Alpha 1' plant early in Q3. The chart above shows the incremental operating capacity added and the global demand growth achieved in the last three years, together with projections for this year and next. NB: Operating capacity is a downward adjustment to nameplate capacity to allow for known operating limits and planned outages.

Interestingly, since 2005, three world-scale plants have been brought on-line and global occupancy has not fallen below 93%. The forecast is that the new capacity that is planned will be required to satisfy the projected level of growth in demand for MMA.

MMA DEMAND STRONG ACROSS THE SEGMENTS

One of the most positive aspects of 2007 and the outlook for 2008 is that MMA demand is growing well in all the major market segments. Use of MMA in LCD technology continues to be a major driving force behind this global growth. Recent announcements from major players in this field outline a commitment to investing many millions of dollars into new manufacturing facilities that will deliver even larger units for the consumer, which further illustrate the confidence in this sector.

SELECTIVE SECTORS ARE PARTICULARLY ROBUST

In the last 6 months, major investment announcements in methacrylate-based coatings and resins indicate that the strong growth that has been observed in this segment over the last few years will continue. In the coatings sector, the current wave of consolidation activity is a trend that is being driven by the desire to grow through the promotion of major brands and is resulting in investment in new production capacity. The impact modifiers and processing aids markets continue to move rapidly. New capacity was brought on-line in the EAME region in Q4 2007 and more is planned for H2 2008. Demand for acrylic sheet for glazing, fabrication and signage had a very healthy 2007 alongside the construction industry resurgence in Europe. Demand continues to be robust in 2008.

MMA MARGINS COMPRESSED OVER LAST 6 MONTHS

There has been no respite in the cost of producing MMA as prices for the major feedstocks have either increased or skyrocketed in the last six months, whilst selling prices have lagged behind. Cost pressure is a major issue for all technology routes to MMA. Our sincere hope is that feedstock costs will fall through the remainder of 2008, but irrespective, the MMA industry must get to the point that it can generate margins that will reward reinvestment, and hence foster continued growth.



Image: [1] Form, feel and function combine in Scheer's products for interior surfaces to allow designers the ultimate creative freedom. Beautiful, organic shapes, infinite colour options, and high performance in use make them the ideal choice for many applications. [2] Launched at Euroshop, 2008, the new material for retail and exhibition design invites users to 'rethink stone'.

'FLACHEN IN PERFEKTION'

A BRAND THAT PROMISES PERFECT SURFACES, PERFECTLY MADE IS THE PERFECT INTRODUCTION TO SCHEER, A GERMAN BUSINESS THAT EMERGED FROM THE SCHOCK ORGANISATION IN 2006 AND IS ALREADY ACHIEVING THE GROWTH AMBITIONS OF ITS LEADER, DR UDO SCHEER. THE FOLLOWING SHORT ARTICLE AIMS TO CAPTURE DR SCHEER'S PASSIONATE BELIEF IN THE POTENTIAL OF HIS COMPANY'S PRODUCTS TO PROVIDE INSPIRING SOLUTIONS FOR A WHOLE RANGE OF PREVIOUSLY UN-TAPPED SECTORS. FROM WALLS, FLOORS AND SURFACES FOR COMMERCIAL INTERIORS, TO HOME AND LIFE-STYLE PRODUCTS, THE IMAGES SPEAK FOR THEMSELVES AND A VISIT TO THE WEBSITE, OR ON-LINE BROCHURE ARE FURTHER ILLUSTRATION OF WHERE SCHEER IS HEADING.

FF: Describe your business and how you use MMA?

Scheer produces a unique, high performing natural stone-based product called Oreolite® as well as a solid surface material called Oreolan®. Both products are used in contract and domestic interiors and are chemically formed using an MMA-based acrylic resin. Oreolite combines the beauty and natural characteristics of stone with the latest in functionality; the surface is non-porous, the material is thin and lightweight (4mm and 6mm are standard thicknesses) and, despite sheet sizes of up to 5m², it is flexible and can be easily thermo-formed. Oreolite provides creative solutions in architecture, interior and furniture design.

FF: Can you tell us about one of your most exciting products?

At EuroShop in Düsseldorf earlier this year, we launched a new material for retail and exhibition design. The highlight was a range of contemporary tables that featured Oreolan support pillars in four new basic colours, with streamline surfaces made from Oreolite Meta-granite that were thermo-curved to create an elegant effect. The key message to our customers was 'rethink stone!' Why? Because our products are extremely tough, strong, scratch-, UV-, and chemical resistant yet are slim, lightweight (some even float in water) and have all the beauties of natural stone. Their performance characteristics are also totally unaffected by the manufacturing process, which means they can be shaped, cut, crafted and thermo-formed without compromise.

FF: What makes Scheer special in such a competitive market place?

One of the things that differentiates Scheer is definitely linked to Lucite International's MMA product; we are the only company that uses an acrylic resin to form our sheets of material and this allows us to offer a uniquely flexible product. Our brand promise is 'Flächen in Perfektion', and that sums up our passion. We continually strive for perfection, and challenge ourselves to innovate new and improved products and applications that will provide our customers with a unique point of difference. Though we are a small German company that develops, produces and fabricates products solely in Germany, we export 60% of our goods internationally. Customers looking for a flexible manufacturer that can create bespoke stone-effect surfaces rapidly will find their solution at Scheer.

FF: What are your key challenges and how do you value Lucite International as a key supplier?

MMA is one of the key ingredients for binding the specially selected natural minerals that come from countries including Austria, Germany and Italy to create our stone slabs. We rely heavily on consistent and reliable supply of high-quality ingredients and raw materials. Once we received a slightly off-coloured delivery of MMA from another supplier and it caused us enormous problems. With its global capabilities, LI is able to provide us with security of supply. This means that we get reliable, quality products precisely when we need them – even when they are in high demand and we very much appreciate this.

FF: You've had a strong working relationship with LI for a number of years what is the key thing for your business?

It's very simple; reliability and continuity.

FF: Do you believe REACH will have a significant effect on your business?

The introduction of REACH is certainly very positive and we are keen to be supportive. The effect on our business is mainly administrative, rather than having any effect on our products.

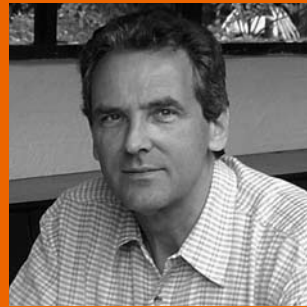
FF: What are your hopes for the future and what role might LI have?

Our goal is to continue growing at the same rate as in previous years (around 15-20% per annum). To be successful, we need strong partners to support us – just as LI has, and continues to do. We are already planning the development of our next generation of product, which will help us to become the market leader for natural stone-based contemporary surfaces that set the benchmark for colour, design, and functionality.

For more information about Scheer Surface Solutions and its products and services, please visit: www.3s-scheer.de



TEAM EUROPE



Lucite International People

NAME:
JEMMA LAWSON
JOB:
CUSTOMER SERVICE
IMPROVEMENT LEADER
JOINED:
2005

TYPICAL DAY:
“Each day is busy, challenging and different but very enjoyable. My role is identifying and implementing improvements within the supply chain as well as giving pro-active support to the Sales Team. This involves working with LI people, customers and suppliers – developing relationships and processes that add value.”

NAME:
**NAZLI
KHODABANDEH-
LOU-WRIGHT**
JOB:
UK & EUROPEAN ORDER
PROCESSOR
JOINED:
2004

TYPICAL DAY:
“I am responsible for upstream order processing - order placement, delivery and invoicing, which means prices feature strongly in my daily routine. Some days are more challenging than others but providing an efficient, customer-focused service is always the most important thing for me.”

NAME:
**GERHARD
GUNDLACH**
JOB:
SALES MANAGER, MID EUROPE
JOINED:
1985

TYPICAL DAY:
“The best days are where I spend time with customers supporting their needs. Many are now like old friends because we've been working together for years, others are newer and there's a challenge to keep them buying. Having honest, open and supportive relationships takes time and energy to achieve but is very rewarding.”

NAME:
ANDREAS KARATZIS
JOB:
SALES MANAGER, BENELUX
AND GREECE
JOINED:
2002

TYPICAL DAY:
“I spend most of my time with customers servicing their needs, which means travel and building long-term partnerships are a big part of my life. I've known many of our customers for several years, but winning new ones makes my day! Best of all, I enjoy finding solutions, whether it be for a new challenge, technical issue or for something much more straightforward.”

Lucite International Market Place

Territory:
The Middle European team covers: Austria, Belgium, Germany, Greece, Liechtenstein, Luxembourg, Switzerland and The Netherlands, an area that is home to around 140 million people.

Products/industries:
MMA and SpMAs for coatings, industrial flooring, kitchen sinks, worktops, adhesives and advertising. Resins for the medical and dental sectors (bone cements, teeth, denture base materials), printing inks, paper interleavants, moulds for the production of sanitary ware and tableware and adhesives.

Growth:
Over the past 3 years, growth has been steady at 5%.

Investing in Market Development:
The monomers market is growing above GDP and our aim is to support our customers' growth plans. Some have announced and are proceeding with expansion plans covering a number of different application areas. We continue to support our customers with their innovation and new product development activities; an example is our work on surfaces with Scheer Surface Solutions, featured in this issue of FreeFlow.

LI's passion for Customer Service:
We have a long-established presence in the Middle Europe territory, which is built on our reputation for high-quality customer service. Our dedicated team of Sales Managers and Customer Service Representatives work hard to make it easy to do business with LI. We realise how important it is to work closely with our customers and when issues arise, we look for the best solution quickly. That way, our customers can focus on their customers, knowing that we will deliver our promises competitively and on time.

SAFETY OUR LICENSE TO OPERATE

ACHIEVING EXCELLENCE IN SAFETY, HEALTH AND ENVIRONMENT (SHE) PERFORMANCE IS OUR NUMBER PRIORITY AT LUCITE INTERNATIONAL (LI). IN 2007, WE SET A NEW PERSONAL INJURY PERFORMANCE RECORD WITH ONLY FIVE CLASSIFIED INJURIES IN TOTAL ACROSS THE WHOLE GROUP. AFTER A DISAPPOINTING 2006 THIS ACHIEVEMENT IS A WELCOME RETURN TO HIGH PERFORMANCE AND DEMONSTRATES THE COMPANY'S STRONG COMMITMENT TO SHE EXCELLENCE AND SAFETY MANAGEMENT. THIS STRENGTH HAS UNDERPINNED THE OUTSTANDING SAFETY RECORD OF THE ALPHA CONSTRUCTION SITE IN SINGAPORE, WHERE THE TEAM CELEBRATED 3 MILLION MAN-HOURS WITHOUT A CLASSIFIED INJURY IN MARCH 2008.

However, where SHE is concerned, there is never room for complacency and so work continues to sustain improvements and promote best practices. The adjacent table demonstrates progress towards our goal of zero injuries and incidents and lists some of the major milestones achieved by our sites. Strong and consistent leadership with clearly articulated vision and values that are supported by a structured improvement programme are critical success factors. The whole process is driven and owned by line management, who are supported by our own SHE Excellence programme, which has been developed internally over a number of years.

WHAT ARE WE DOING TO GO EVEN FURTHER?

LI continues to raise the profile of process safety management through the development of SHE standards and auditing, the promotion of cyclical process hazard reviews and a high profile being given to process incidents. At the same time, it is also important for us to learn from external industry disasters. In particular, March 2005 saw the USA's largest process incident for more than 20 years at BP's Texas City refinery and in December of the same year, the fire at the Buncefield oil storage depot in the UK. These gave us valuable opportunities to learn.

SITE	PERFORMANCE
Beaumont, USA	2 years without an injury (MMA)
Caojing, China	2 years without an injury; accreditation to OHSAS18001
Cassel, UK	1 year without an injury
Clairvaux, France	1 year without an injury
Darwen, UK	CIA Diamond Award for the 6th year
Fite Road, USA	1 year without an injury; OSHA Star status
Ibaraki, Japan	2 years without an injury
KMC, Taiwan	1 year without an injury; injury free overhaul
Lucite Center, USA	5 years without an injury
Newton Aycliffe, UK	3 years without an injury
Rozenburg, Holland	2 years without an injury
Thai Poly Acrylics, Thailand	7 years without an injury
Wilton, UK	2 years without an injury

LEARNINGS ARE OPPORTUNITIES TO IMPROVE

LI has already completed an analysis of the potential learnings from these incidents and is pursuing implementation of corrective actions as a key priority in 2008. The team is working on ideas to apply best practice in the areas of start-up supervision, management of fatigue, positioning of temporary buildings and excluding non-essential personnel at plant start-ups. Work on other issues raised by the incidents will continue throughout 2008. In addition, LI's Global Safety, Health and Environmental Manager has just published a 200-page book to ensure that SHE Excellence is even more widely accessible to the organisation and its partners. For more information, please contact your LI Sales Manager.

BP TEXAS CITY USA REFINERY DISASTER

On 23 March 2005, a distillation column was overfilled during a plant start-up, which led to liquid being ejected from the plant's vent stack. A vapour cloud was formed and ignited by a diesel truck; the resulting explosion killed 15 contractors in a temporary trailer and injured many others. It was the largest process incident in the USA for 20 years. Learnings:

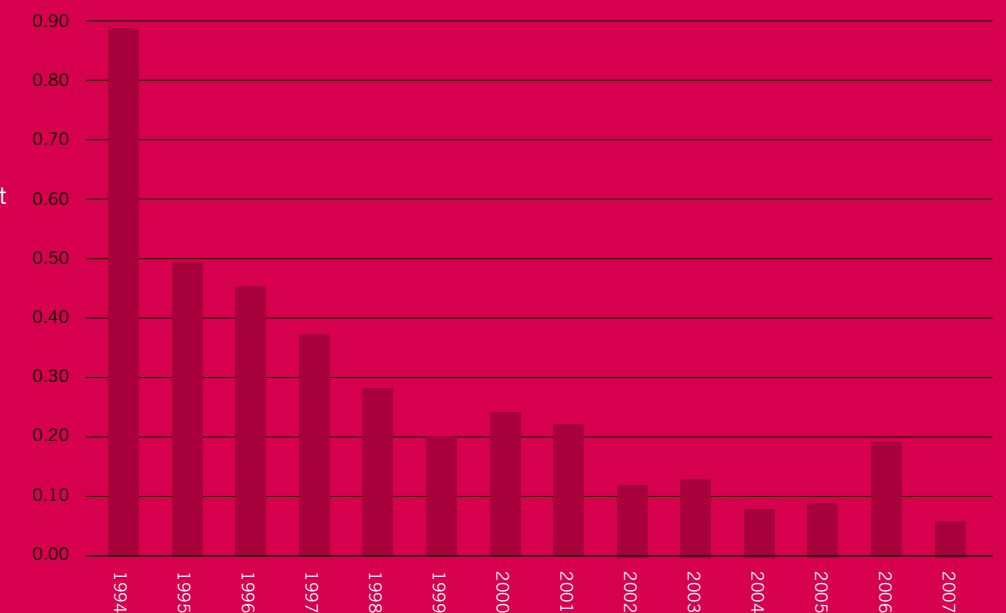
- Poor overfill protection of towers connected to vent systems
- Inadequate supervision and control of non-essential people during start-ups
- Fatigue in relation to overhauls and start-ups
- Inadequate operator training
- Deficient design of blow-down systems
- Inappropriate location of temporary buildings
- Ineffective maintaining procedures and leading indicators of performance
- Lack of appropriate quality performance indicators viewed at senior level.

BUNCEFIELD UK OIL DEPOT FIRE

On 11 December 2005, a large unleaded petrol (gas) tank was overfilled, leading to a large loss of liquid. The liquid overflowed the tank's bunds and was eventually ignited, probably by an ignition source within an electrical substation. The resulting explosion was the largest in Europe since WWII and devastated the large storage depot and surrounding buildings. If it had not happened on a Sunday, many lives would have been lost. The fire took several days to control and contaminated water from the fire continues to pollute local groundwater. Learnings:

- Poor tank overfill protection
- Inadequate operator training and shift handovers
- Secondary containment requires attention
- Ineffective fire water management

HISTORICAL SAFETY PERFORMANCE - EMPLOYEES AND CONTRACTORS INJURIES REQUIRING MEDICAL TREATMENT



The chart illustrates a positive overall improvement trend.

REACH

PREPARATIONS FOR PRE-REGISTRATION



Fiona Smith, REACH Manager

Preparations for pre-registration and registration of substances under the new REACH regulation have continued at Lucite International. Our third guide aims to summarise some of the issues for Downstream Users. Comprehensive details are available in the European Chemicals Agency's (ECHA) document, 'Guidance for Downstream Users'. The first major milestone for registration is fast approaching. [Here is a reminder of those key milestones for 2008:](#)

1 JUNE 2008	1 DECEMBER 2008	1 JANUARY 2009
<p>Pre-registration starts for Phase-in Substances:</p> <ul style="list-style-type: none"> EINECS listed substances Substances manufactured in the EU between 1 January 1995 and 1 May 2004 but not placed on the market Substances placed on the market between 1 January 1995 and 1 May 2004 and notified in accordance with Directive 67/548/EEC but classified as No Longer Polymers (NLP) <p>REACH Registration applies to all new substances.</p> <p>ELINCS substances are considered registered but the registration will be owned by the original notifier.</p> <p>New substances to be introduced to the EU market (manufactured or imported) are to be registered in accordance with REACH.</p>	<p>Pre-registration ends</p> <ul style="list-style-type: none"> All phase-in substances should be pre-registered It will be illegal to manufacture or import a phase-in substance unless you have pre-registered or registered. <p>Latest date for ECHA to assign registration numbers for ELINCS listed substances to the notifier of that substance.</p>	<p>Registrants of the same substance to be identified by ECHA for SIEF membership.</p>

In addition to our third guide, we have looked at the specific issues for all of our manufacturing sites (EU and non-EU). This information has been compiled into specific business guidance documents covering REACH implications for our monomers, polymers, composites and acrylic sheet. The guides are available via the link at: www.luciteinternational.com

WE VALUE YOUR OPINION

We would very much like to know what you think of FREEFLOW. If you have a particular area of interest or would like to see a particular issue covered next time, please do let us know by emailing comments to: peter.snodgrass@lucite.com

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