

# BROADCASTER

INTERNATIONAL OXYGEN MANUFACTURERS ASSOCIATION

FIRST QUARTER 2015  
ISSUE 1 | [www.iomaweb.org](http://www.iomaweb.org)

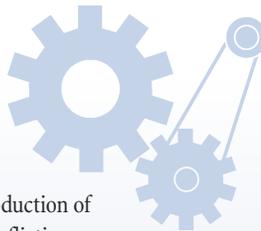
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## Harmonization in Focus

### The Benefits of Harmonization

The safety of employees, end users, and the general public has always been foremost among the business objectives of the industrial and medical gases industry. The International Harmonization Council (IHC) was established in 1998 to share safety practices and reduce discrepancies in safety standards and operating practices through the production of publications that are identical in purpose and scope and eliminate any conflicting technical or operational requirements. Developed by joint working groups of experts from the participating associations, these publications present **consensus-based industry practices for the manufacture, transportation, storage, transfilling and disposal of industrial and medical gases**. Though harmonization is a resource-intensive process, the benefits to members of participating associations are numerous. ■



### Interview with Mr. Hervé Barthélémy, Chairman of the Group: Reciprocating Cryogenic Pumps & Pump Installations A-1103



Hervé  
Barthélémy,  
Air Liquide

Hervé joined Air Liquide in December 1978 in the Research Department and has held various positions. He is presently an International Fellow, Responsible for Materials, Gas Cylinders, Pressure Equipment and Hydrogen Activities, Chairman of the EIGA working group on Cryogenic Vessels and an active member of several other EIGA working groups, including WG-2 (Gas cylinders). He is Chairman of CEN/TC 268, ISO/TC 220 and two working groups of these ISO and CEN committees for cryogenic vessels. He is also Chairman of several sub-committees and working groups on gas cylinders (at CEN/TC 23 and ISO/TC 58), in particular the ISO/TC 58/WG 7 working group responsible for the standard development of hydrogen compatibility tests. Hervé graduated from the Polytechnic Institute of Grenoble with a degree in engineering. He also has a PhD in Materials Science.

#### What triggered this harmonization project for high-pressure cryogenic pumps? Was it simply the importance of this type of equipment or was there a particular incident that prompted it?

A near miss accident occurred a few years ago in Europe on a high-pressure cryogenic pump. An internal fire started but it had no external repercussions. We noted that the plastics used for the sealing system were made of PTFE, which produces toxic gases. Clearly this is a safety hazard because in this case the pump was being used to fill medical oxygen tanks.



A reciprocating Cryogenic Pump used in a cylinder filling center

#### What are the immediate and future benefits of this project for the industrial gases industry?

After this accident, we realized that there was no safety and technology document for high-pressure pumps of this type. So we decided to prepare an EIGA document on this subject and then harmonize it.

#### How long did it take to publish?

#### Who was involved?

Our first discussions on the document began in 2008 at EIGA. It was initially prepared by the EIGA WG-6 group. Once the document was completed at the EIGA level, it was adapted into a harmonized document and published as such in May, 2014. In parallel an IHC Joint Working Group reviewed our document and we addressed their comments via conference calls.

#### Can you tell us a little about your cross-cultural experience?

Leading an international group of experts from the regional gas associations is an enriching experience that allows us to exchange viewpoints amongst each other. It can be difficult to achieve a consensus because of cultural differences that can exist – sometimes within a single company.

#### What did you learn from this experience?

I learned a lot and I continue to learn every day even though I have worked in an international environment since the beginning of my career, in terms of my outside work (EIGA, CGA, ISO, UN) as well as my work within the AL Group. I have learned how to arrive at a consensus when there are divergent opinions – between companies, between regions in Europe and North America. So I've been working on achieving international harmony for a long time. ■



Click to watch  
*Harmonization  
in Focus*  
(3:00 min video)



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**IOMA BROADCASTER:** The printed edition of the *IOMA Broadcaster* is published quarterly in March, June, September, and December. The online edition of the *Broadcaster* is regularly updated.

**DEADLINES:** The deadline for submission of news for the *Broadcaster*, and for inserting, changing, or deleting advertising in the "Trading Post" section is the 15th day of February, May, August, and November.

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## IOMA Board and Global Committee to Meet in May

The IOMA Board of Directors will hold its next regular meeting on **Tuesday, May 19, 2015**. Under the leadership of IOMA President **Stefan Messer** (*Messer Group GmbH*), the Board will discuss all business necessary for the continued successful operation of the Association. The Board also will review any new membership applications received since the last Board meeting in October. Please consider suggesting IOMA membership to any company that may qualify for a Voting or Associate membership.

IOMA's Global Committee also will conduct their next meeting on Tuesday, May 19, 2015. Committee Chairman **Guy Salzgeber** (*Air Liquide S.A.*) will lead the Committee as it discusses the standard harmonization projects underway by the association members of the International Harmonization Council, which includes the **Compressed Gas Association** (*Chantilly, VA, USA*), the **European Industrial Gases Association** (*Brussels, Belgium*), the **Japan Industrial & Medical Gases Association** (*Tokyo, Japan*), and the **Asia Industrial Gases Association** (*Singapore*).

Members who have matters that they would like brought to either the Board or the Global Committee for discussion and/or potential action should notify IOMA Executive Director **David Saunders** by April 15, 2015. ■

## Thank You for Your Prompt Payment of Annual Dues

We would like to thank all IOMA members who have promptly remitted their 2015 membership dues, which cover the fiscal period from January 1, 2015 through December 31, 2015.

Members who have not paid their dues should have received a reminder invoice recently. Each member company has 90 days after the start of the fiscal year (January 1) in which to pay its annual dues to remain as a member in good standing. If dues are unpaid at the end of the 90 days (March 31) and after at least two invoices and a written notice of warning have been sent, the member may be dropped from IOMA's membership rolls. We appreciate your cooperation and continued support. ■

## 2015 Membership Roster in Progress

The 2015 IOMA Membership Roster is in progress. In December, IOMA sent an information verification form along with the 2015 dues invoice to the primary representative of each member company, with a response deadline of January 31. Recipients were asked to either indicate any changes to their company listing or confirm that that the information is current.

Members who have not responded are urged to act now so that accurate information is published in the 2015 Roster. ■

## IOMA PAST ANNUAL MEETING PRESENTATION SLIDES ON THE WEB

A comprehensive archive of speaker presentations from past IOMA meetings, including the 2014 Annual Meeting in Kyoto, Japan, last October, is available for members only at [www.iomaweb.org](http://www.iomaweb.org).

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ONLINE!  
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for members only.

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IOMA

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Contact us at  
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SAVE THE DATE

72<sup>ND</sup> IOMA ANNUAL MEETING  
ROAD TO ROME

7 - 11 NOVEMBER 2015

Planning is well under way for the 2015 Annual Meeting in the beautiful Italian capital city of Rome. We hope you are looking forward to join your IOMA family **November 7-11** and to celebrate IOMA's 72nd Annual Meeting — the premier business conference of the world's industrial gas industry leaders. The Annual Meeting Program Committee, led by IOMA Vice President **Tom Thoman** (Airgas, Inc.) is busy developing this year's theme and speakers program.

IOMA also is coordinating several special events which are sure to be memorable. We are very grateful for the **ten Italian member companies of IOMA who will host a very special reception and dinner** on Sunday, 8 November in the spectacular **Palazzo Colonna** (pictured below) — one of the oldest private palaces in Rome which houses one of the largest and most impressive art collections in Italy. On Tuesday

night, 10 November, IOMA is planning a **private tour of the Vatican Museum**, including Michelangelo's Sistine Chapel. This event is for IOMA meeting attendees only and will replace our traditional Closing Reception.

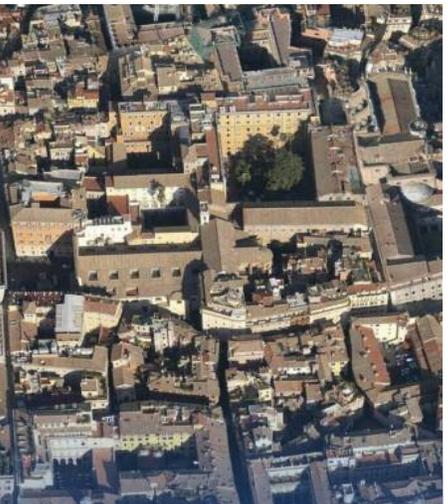
Additional information on the program will be available soon and registration materials will be distributed to all members in June. Until then, please **mark your calendar!**

### Rome Sneak Preview

Hailed as the "Eternal City," Rome is one of Europe's most ancient urban centers, dating back almost 3,000 years. Rome's early inhabitants left behind a trove of architectural masterpieces, including the massive Colosseum and the Forum. The Italian capital also boasts an unparalleled concentration of world-class art, from Michelangelo's Sistine Chapel to the baroque Trevi Fountain, and teems with restaurants, trattorie, osterie, pizzerie, enoteche, cafés, bars, and gelaterie. It is home to the animated, good-humored Romans, who live to eat, drink wine (and espresso), and hold forth on everything from politics to soccer, fashion, food, and films. Rome also encompasses the Catholic Church's independent city-state, the Vatican, which is home to the imposing St. Peter's Basilica—and the Pope.



Saint Peter's Square



The glories of Ancient Rome, the pomp of the Renaissance Papacy, and the futuristic architecture of the 20th and 21st centuries all blend magically into a harmonious whole providing a great backdrop for IOMA's Annual Meeting. **We hope that you are already planning to join your IOMA family in Rome!**

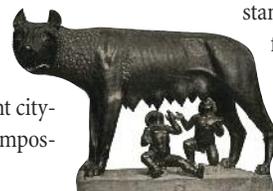
### The Rome Cavalieri

Overlooking the panorama that has inspired visitors for centuries is Rome's most prestigious address — the Rome Cavalieri (a Waldorf Astoria hotel). Though only minutes from the city's great monuments, the Rome Cavalieri has the tranquility of an oasis. Enclosed in fifteen acres of lush Mediterranean parklands, this luxury hotel is a calm retreat in the heart of the Eternal City.

More than just a 5-star property: with a museum-quality art collection, a Grand Spa, and standards of luxury that set it apart from other Rome hotels, the Rome Cavalieri brings new meaning to notions of Italian style. Learn more at [www.romecavalieri.com](http://www.romecavalieri.com)



Rome Cavalieri





## OUR INDUSTRY IN THE NEWS

### Toyota Unveils a New Hydrogen Fuel Cell Car

Toyota recently introduced the first mass-produced hydrogen fuel cell vehicle, the Murai (meaning “future” in Japanese). The Murai converts compressed hydrogen gas into electricity producing only water vapor exhaust. This eco-friendly car can drive 300 miles (483 km) per tank and requires about 3 minutes to fully charge its battery.

Although some critics of hydrogen fuel cell technology, including Elon Musk, believe that hydrogen is too difficult to produce, store and convert to fuel, Toyota states that these critics are too focused on only electric cars, to the exclusion of other clean fuel technologies. Initially, the Murai will be available only in California, USA, which is home to the few hydrogen fueling stations currently available in the U.S. However, Toyota plans to aggressively promote the “green” technology of H<sub>2</sub> fuel cell vehicles worldwide.

The Murai’s production will be “hand-crafted”, resulting in a production of only three cars per day or 700 per year for the U.S., Japan, and Europe markets. Despite its price of USD 58,000, it offers the longest range of any electric car currently on the market. The model will be available in Japan in March and in the U.S. sometime in 2016.

Other vehicle manufactures are also embracing the fuel cell technology, including Hyundai and Honda, despite the lack of charging stations nationwide. Toyota has been one of the biggest supporters of this “hydrogen era” by opening up over 5,000 of their fuel cell patents for free. Japan has also been investing in self-service hydrogen stations, easing regulations, and plans to offer incentives (3 million yen/\$25,200) to early buyers. ■

### Can Oxygen Therapy Help Beat Cancer?

A provocative new study in mice suggests that breathing extra oxygen might give immune cells a boost in attacking cancer. The immune system of mammals often can identify and destroy abnormal cells before they turn cancerous. But if the cells become tumors, the tumors then defend against attacks by our immune system. The new study indicates that extra oxygen may break through one of those defenses.

According to the study’s lead author, Michail Sitkovsky of the New England Inflammation and Tissue Protection Institute, the extra oxygen appears to help remove the blocking capability that cancer applies to tumor-fighting immune cells. When tumors grow rapidly they outpace their blood supply and create a low-oxygen environment. This low level of oxygen can cause cancer cells to produce a special molecule, which puts tumor-fighting cells “to sleep”.

Many researchers are working to develop drugs that would block this effect. But Sitkovsky’s team introduced additional oxygen to oxygen-starved tumors in an effort to eliminate the tumor’s defense. In supplemental oxygen therapy chambers mice were given air with 40-60 percent oxygen. The extra oxygen allowed the immune cells to break through the defenses put up by the tumors. The tumors shrank in the mice receiving elevated concentrations of oxygen, particularly when the oxygen was combined with injections of extra tumor-fighting cells. The data from this research appears to be enough to start adding supplemental oxygen to certain cancer therapies. ■



## RELATED ASSOCIATION NEWS

### EIGA Documents

The **European Industrial Gases Association (EIGA)** (Brussels, Belgium) has made the following publication available. These documents and others may be obtained from the EIGA website at [www.eiga.org](http://www.eiga.org).

- *Prevention of Excessive Pressure during Filling of Cryogenic Vessels* - EIGA Doc 151/15 (revision of Doc 151/08)
- *Harmonisation of Information for Poison Centres* - BN 15/15 (revision of October 2013 edition)
- *Training Package TP 44/15 - Recent Incidents in the Industrial and Medical Gases Industry (SAC 141)*
- *The Calculation of Harm and No-harm Distances for the Storage and Use of Toxic Gases in Transportable Containers* - EIGA Doc 189/14 Corrigendum
- *Code of Practice - Silane* - EIGA Doc 160/15 (revision of Doc 160/10)
- *Safe Design and Operation of On Site Generation of Oxygen 93% for Medical Use* - EIGA Doc 195/15
- *Training Package TP 43/15 - ADR 2015 - Main changes linked to Class 2 transport*

- *Safe Design and Operation of On-site Nitrogen Generators for Food Use* - EIGA Doc 194/15
- *Calcium Carbide Storage and Handling* - EIGA Doc 196/15
- *Good Manufacturing Practice Guide Part I for Medicinal Gases* - EIGA Doc 99/15 (revision of Doc 99/03)
- *EIGA Safety and Environmental Award Schemes* – EIGA 903/15 (revision of EIGA 903/09) ■



# IOMA MEMBER NEWS

## Linde to Build Hydrogen Fuelling Station in Sweden

**The Linde Group** (Munich, Germany), via its Scandinavian business branch AGA, will build its first hydrogen refueling station in Sweden at Arlanda airport outside Stockholm. The new station, which will be the country's largest so far, coincides with the introduction respectively announcement of serial-produced Fuel Cell Electric Vehicles (FCEVs) by many leading car manufacturers. The "green" hydrogen will be produced by electrolyzers running on renewable electricity from hydro-power in AGA's new production plant in Sandviken, some 180 km north of Stockholm. The station's core components, based on Linde's proprietary ionic compressor technology, are designed and assembled in Linde's recently inaugurated small-serial manufacturing facility in Vienna, Austria. The new station will be operated by AGA and is envisaged to become part of a larger network with links to similar infrastructure initiatives in Norway, Denmark and Germany. The Arlanda station will be a "full size" unit with a maximum capacity of 180 fillings per day. Normal refuelling at a pressure of 700 bar will take only about three minutes. Built with contribution from the EU, the facility is planned to go in operation in September 2015 and will be located next to a recently acquired biogas station.

Linde has equipped over 90 fuelling stations in 15 countries with hydrogen refuelling technology, supporting fuel-cell cars, buses and forklift trucks.

## Praxair to Supply Hydrogen to NASA Space Programs

**Praxair, Inc.** (Danbury, CT, USA) has been awarded NASA's agency-wide Acquisition of Liquid Hydrogen contract. Praxair's hydrogen supply network will serve four NASA sites, including Stennis Space Center, Mississippi; Kennedy Space Center, Florida; Marshall Space Flight Center, Alabama; and Glenn Research Center, Ohio. NASA projected the maximum value of the five-year contract to be \$53 million. NASA uses liquid hydrogen as fuel for rocket engine development, testing and launch of spacecraft; delivery of satellites into earth orbit; and delivery of payloads to the International Space Station. In addition to the hydrogen supply, NASA awarded Praxair a five-year liquid oxygen supply agreement for the Kennedy Space Center, and previously, the Department of Defense awarded Praxair a five-year liquid hydrogen supply agreement for missions launched from Vandenberg Air Force Base in California. Praxair will serve the NASA requirements from three production facilities located in Alabama, Indiana and New York.

## MATHESON to Build ASU for Sasol's Ethane Cracker

**MATHESON** (Basking Ridge, NJ, USA) has entered into an agreement with Sasol to supply tonnage oxygen and nitrogen to Sasol's world-scale ethane cracker, which is part of Sasol's \$8.1 billion expansion in Lake Charles, LA, USA. MATHESON's new Air Separation Unit ("ASU") will augment existing operations, supplying both Sasol and existing customers while also providing for additional expansion in the Lake Charles area. According to Louisiana Economic Development ("LED"), over 130 new direct and indirect jobs in Louisiana will be traceable to the MATHESON project. These jobs are in addition to the jobs created by the Sasol expansion project itself. MATHESON's ASU complex is scheduled for completion in 2016, while Sasol's ethane cracker and derivatives complex is scheduled for startup in 2018.

## Linde Launches Retail Hydrogen Fueling Station in U.S.

**The Linde Group** (Munich, Germany) recently announced that Linde LLC, their North American subsidiary, has put its first retail hydrogen fueling station in the U.S. into operation. The facility, which is a part of the Ramos Oil Company multi-fuel station in West Sacramento, California, was recently inaugurated. The California Energy Commission, which supports this project, announced that it is providing funding for a significant number of additional retail stations throughout the state. Apart from the one in West Sacramento, Linde received funding for a total of six stations. Linde has also built and is operating two hydrogen fueling stations for California's AC Transit to fuel twelve hydrogen fuel cell buses in Emeryville and Oakland. At the heart of the hydrogen fueling system is the Linde IC 90 ionic compressor, which enables higher throughput and enhanced back-to-back fueling. Unlike conventional piston-operated compressors, the IC 90 works with ionic liquid that does not evaporate or mix with the hydrogen gas. It also eliminates mechanical wear-and-tear and sealing problems inside the cylinders.

## MATHESON Completes ASU Expansion in North Dakota

**MATHESON** (Basking Ridge, NJ, USA) has completed the second of two phases of its new Air Separation Unit (ASU) capacity in Dickinson, North Dakota, USA to meet the growing demand for merchant liquid nitrogen and liquid oxygen in the region.

The ASU produces liquid nitrogen, which is in high demand for shale oil and gas exploration and production, as well as other industrial applications in the region. It also produces liquid oxygen, which will be used to supply multiple markets, including medical and fabrication applications.

## Praxair Supplies World's Largest Glass Container Manufacturer

**Praxair, Inc.** (Danbury, CT, USA) announced that it has started up a 180-ton-per-day, non-cryogenic plant for Owens-Illinois (O-I), the world's largest glass container manufacturer and preferred partner for many of the world's leading food and beverage brands. O-I has converted a conventional air-fuel glass furnace to oxy-fuel using Praxair's oxy-fuel combustion technology and, under a long-term contract, Praxair will supply gaseous oxygen to the glass facility located in Muskogee, Oklahoma.

Oxy-fuel combustion uses oxygen rather than air to enhance combustion, improve energy efficiency in the glass melting process and reduce nitrogen oxide emissions. In addition to supplying the oxygen, Praxair has provided the oxy-fuel combustion flow control skids and installed its dilute oxygen combustion Wide Flame Burner technology, designed to minimize furnace emissions and reduce furnace crown deterioration.

The glass container industry produces containers for packaging food and beverage products. The United States manufactures approximately 10 million tons of product annually and is the largest segment of the glass industry, by volume. O-I delivers safe, sustainable, pure, iconic, brand-building glass packaging to this growing global marketplace.

## IOMA Member News

*continued*

### Praxair Expands on U.S. Gulf Coast

**Praxair, Inc.** (Danbury, CT, USA) has signed a 20-year agreement to supply approximately 170 million standard cubic feet per day of hydrogen and 2,000 tons per day of nitrogen to a new 750,000 metric tons per year ammonia complex being built by a new entity formed by Yara and BASE.

To help fulfill the raw material requirements of this world-scale ammonia project located in Freeport, Texas, USA, Praxair is investing more than \$400 million to add hydrogen and nitrogen production capacity and extending its Gulf Coast pipeline systems approximately 46 miles from Texas City to the Freeport area. Praxair's pipeline systems are supported by multiple hydrogen and air separation plants and product storage capabilities including Praxair's innovative 2.5 billion standard cubic foot high-purity hydrogen storage cavern. The pipeline extensions are scheduled to be in operation in 2016 and the supply to the complex is expected to start in late 2017.

### Air Liquide to Supply Methanol Production Complex in Louisiana, USA

**Air Liquide S.A.** (Paris, France) announced that it has been selected by Chinese petrochemical company Yuhuang Chemical, Inc., as the supplier of oxygen for its new world-scale methanol manufacturing complex to be built in St. James Parish, Louisiana, USA. Air Liquide will invest around 170 million USD (around 140 million euros) in this high growth area for the chemical industry.

The new Yuhuang Chemical methanol manufacturing complex will produce approximately 5,000 tons of methanol per day, making it one of the largest methanol production facilities in the U.S. based on capacity.

Air Liquide has entered into a new long-term agreement to supply Yuhuang Chemical with 2,400 tons of oxygen per day. Air Liquide will build a new, state-of-the-art, energy efficient Air Separation Unit (ASU) producing oxygen, nitrogen and argon. Connected to Air Liquide's extensive pipeline system in Louisiana, providing enhanced reliability of supply, the ASU is expected to be commissioned by the second half of 2017.

Air Liquide also recently signed a contract to license its MegaMethanol® process technology to Yuhuang Chemical. This proprietary technology converts natural gas to methanol.

### Air Products Signs Agreement to Develop Hydrogen Fueling for Japan's Material Handling Market

**Air Products & Chemicals, Inc.** (Allentown, PA, USA) and Suzuki Shokan Co., Ltd. jointly announced the signing of an "Alliance Agreement" for the two companies to work together on the design, construction and operation of hydrogen fueling stations for use in fueling the material handling vehicle market in Japan. Air Products and Suzuki Shokan, an industrial gas company based in Tokyo, Japan, will take Air Products' proven hydrogen fueling technology and work jointly to make any needed infrastructure modifications in order to meet Japanese laws and regulations. As part of the Alliance, the companies also agreed to a standard Equipment, Engineering and License for Suzuki Shokan's purchase and use of key equipment to be supplied by Air Products for the implementation of Air Products' SmartFuel® hydrogen fueling station technology.

### Messer Group Opens New Helium Filling Plant in Southeast Europe

**Messer Group** (Bad Soden, Germany) announced the opening of a new helium filling plant in Pančevo, Serbia. The noble gas is filled in different purities at the plant, from "simple" balloon gas to high purity Helium 6.0 for special applications, for example in laboratories. The Messer companies in the neighboring countries of Croatia, Bosnia-Herzegovina, Montenegro, Albania, Macedonia, Romania, Bulgaria and Turkey also get their helium from the new filling plant. It has initially been designed for an annual output of 380,000 liters of liquid helium and is equipped with a range of filling technologies.

### Airgas to Build New Liquid Hydrogen Plant in Kentucky

**Airgas, Inc.** (Radnor, PA, USA) announced plans to build a liquid hydrogen plant in Calvert City, KY, USA. The new facility is targeted to be on-stream in the summer of 2016 with the capacity to produce ten tons per day of liquid hydrogen for use in a wide range of customer applications, including electrical power generation; the production of metals, glass, chemicals, and food products; and emerging applications for hydrogen-powered fuel cells.

The liquid hydrogen plant will neighbor Airgas' new air separation unit (ASU), announced in May 2014 and expected to be on-stream in the spring of 2016. The ASU will supply tonnage oxygen and nitrogen via pipeline to Westlake Chemical Corporation, as well as produce liquid oxygen, nitrogen, and argon for the region's merchant bulk gas market.

### MATHESON Announces Acquisitions in Hawaii and Southern California

**MATHESON** (Basking Ridge, NJ, USA) announced its acquisition of the Hawaiian assets and operations of Air Liquide America L.P. The acquisition includes five locations on four islands including an air separation unit (ASU). The acquisition of the Hawaiian business represents expansion to a new market for MATHESON, which did not previously have air separation or filling operations in the U.S. state.

MATHESON also announced the acquisition of Sims Welding Supply in Southern California, USA. Sims Welding Supply is a well-established supplier of industrial, specialty, and bulk gases, plus welding hard goods, equipment, and supplies. Headquartered in Long Beach, Sims operates out of seven locations in Southern California. ■



■ **Messer Group GmbH** (Bad Soden, Germany) will sell cylinder gases for laser material processing under the brand name Lasline in future. When naming its product lines, Messer uses brand names, which combine a synonym for the area of application and the suffix "line". Examples include Ferroline for shielding gases used in plain steel welding, Inoxline for shielding gases used in high-alloy steel welding, Aluline for shielding gases used in aluminium welding, Labline for laboratory and test gases, Traceline for gas mixtures with minimal traces of admixtures, Topline for top-precision gas mixtures, Tecline for technical gas mixtures and Pharmaline for gases used in the pharmaceutical industry. Customers can find all the gases for their applications under one brand name. ■

# TRADING POST

Deadline for new ads, changes or deletions: **May 15, 2015**

IOMA's Trading Post is a classified advertising service for IOMA MEMBERS ONLY, to sell or seek surplus plants and equipment. All contacts about items offered in these advertisements must be directed solely to the advertiser. IOMA does not make or assume any warranty about, or take or assume any responsibility for, the items being advertised; nor can IOMA provide any additional information about the items. Advertising rules and rates for the Trading Post are available upon request from IOMA.

## RANCH CRYOGENICS, INC.

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F: +1 (815) 476-9107  
E: duffy4rci@aol.com  
www.ranchcryogenics.com  
Contact: Mike Duffy, Sr.

40,000 SCFH HPN-40 HIGH PURITY NITROGEN PLANT, ready for immediate installation from recently canceled project. Coldbox has been rehabbed and tested; all control valves rebuilt; rebuilt expander and product compressor; new Mole Sieve system; new refrigeration unit; new defrost heater and moisture separator; new hybrid water cooling system; new Cameron air compressor; new analysers, panel, and I/O panel. All installed in a Falcon 40'x8' control room. Includes new Delta-V control system; new MCC; all new pre-fabbed pipe and supports. Designed to fit on a 70 X 80 flat concrete pad.

325 to 380 TPD O<sub>2</sub> PLANT; 99.5% O<sub>2</sub> 800,000 SCFH N<sub>2</sub> < 5PPM O<sub>2</sub>

200 TPD O<sub>2</sub> PLANT; 99.5% O<sub>2</sub>; 643,000 SCFH N<sub>2</sub> @ 99.985%; 10 TPD Argon

600 TPD O<sub>2</sub> PLANT; 99.5% O<sub>2</sub>; 1400 TPD N<sub>2</sub> > 10 PPM O<sub>2</sub>; 25.5 TPD Argon

JOY/COOPER TURBO COMPRESSOR; Model: 4MSGEP-12; Gas Air; 14.7 PSIA; Inlet Pressure: 14.5 PSIA; Inlet Volume: 24,630 icfm; Discharge Pressure: 107 PSIA; Input Speed: 1200 RPM; Motor: Ideal Electric Co. Synchronous 4600 HP, 4160 Volt, 3 Phase, 60 HZ; 1.0 Power Factor; 1.15 Service Factor. 1200 RPM

SULZER O<sub>2</sub> COMPRESSOR (2D 200-2A); Type: 2D200-2A; Suction Volume ft<sup>3</sup>/min 975 final pressure 136 lb; Serial #6284; Year Built: 1964; Motor: 300HP

SULZER O<sub>2</sub> COMPRESSOR (2D 150-2A); Type: 2D150-2A; Suction Volume ft<sup>3</sup>/min 422 final pressure 150 lb; Serial #6869; Year Built 1972; Motor: 124HP

SULZER O<sub>2</sub> COMPRESSOR (4D 200-2B); Type: 4D 200-2B; Suction Volume ft<sup>3</sup>/min 1510 final pressure 186 lb; Serial #7116; Year Built 1975; Motor: General Electric 600HP

## CALENDAR IOMA & INDUSTRY EVENTS 2015

**APRIL 19-23**

CGA ANNUAL MEETING  
Palm Beach Gardens, FL

**MAY 19**

IOMA BOARD OF DIRECTORS &  
GLOBAL COMMITTEE MEETINGS  
San Francisco, CA

**JUNE 4-6**

EIGA SUMMER SESSION  
Milano, Italy • Hotel Milia

**NOVEMBER 7-11**

IOMA 72<sup>ND</sup> ANNUAL MEETING  
Rome, Italy • Rome Cavalieri Waldorf Astoria



## 2016

**OCTOBER 23-27**  
IOMA 73<sup>RD</sup>  
ANNUAL MEETING  
San Diego, CA, USA  
The Grand del Mar



## 2017

**NOVEMBER 11-15**  
IOMA 74<sup>TH</sup>  
ANNUAL MEETING  
Dubai, UAE • The Ritz-Carlton  
Dubai Jumeirah Beach

