Members Only **Fall 2016**

PV Market Forecast to 2021

by Research and Markets

The pressure vessel market is expected to reach USD 184.87 billion by 2021, at a CAGR of 5.38% from 2016 to 2021. The growth of this market is attributed to huge electricity demand and industrialization in different regions. Investments for renewable power generation in Asia-Pacific and North American countries have been planned to meet the rising power demand, which in turn are going to boost the demand for pressure vessels.

Among various end-user industries for which pressure vessels are employed, the chemicals segment is expected to be the largest market by 2021. Asia-Pacific and North America comprise fast growing markets for this segment.

Boilers are the largest segment among the type of pressure vessels. The boilers segment within the pressure vessel market is expected to have the highest growth from 2016 to 2021, given its increasing usage in the power generation sector. This market is expected to witness the maximum growth in the Asia-Pacific region.

Learn more >

Shale gas fuels boom in US chemicals trade

Industry research website investors.com says that shale gas-and its breakdown products ethane, ethylene, cracker, and ammonia-is fueling a resurgence of

domestic chemical manufacturing. About 60% of the $170 billion being spent on manufacturing projects is foreign investment.

The increased facilities activity is significant along the Gulf Coast, where most refining and chemical processing already takes place. But other locales are seeing the boom, too. In Pennsylvania alone, production of natural gas is up more than 2,400% between 2005 and 2014. Royal Dutch Shell plans an ethylene plant to take advantage of Pennsylvania's local, reliable, and cheap source of feedstock for plastics.

Another impact of the shale gas increase is an oversupply of liquefied natural gas (LNG). According to GasProcessingNews.com, investments in LNG investments could be slowed by an oversupply projected to last until 2024. Nevertheless, GasProcessingNews' editor says that, "Despite the potential for an oversupply of LNG, liquefaction terminal and FLNG vessel projects will continue to be approved and constructed." Demand from South America, Asia, and Europe will "continue to drive export opportunities."

Learn more > Investors.com, dced.pa.gov, GasProcessingNews.com

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Introduction to ASME Boiler & Pressure Vessel Code, Section VIII, Division 1

By Robby Hagemann, Boardman, Inc.

ASME BPVC Section VIII, Div. 1 (henceforth referred to as the Code) contains mandatory requirements, specific prohibitions, and non-mandatory guidance for pressure vessel materials, design, fabrication, examination, testing, certification, and pressure relief.

The Code does not address all aspects of these activities, and those aspects which are not specifically addressed should not be considered prohibited...Read more at the link.

Learn more >

(Ed. note: This article originally appeared in Boardman, Inc.'s own newsletter and is used with permission.)

OSHA Safety Data for PV Operations

The 2015 National Board Incident Report is now available. "The report includes OSHA summaries that have

been updated and cleared by OSHA as of 10/9/15 for incidents dating back to 12/31/2010," the National Board states.

There were 290 incidents reviewed by the National Board. Eleven were determined to be boiler and pressure vessel related. There were four fatalities and eight injuries among the eleven.

What's more interesting are the "Stories Behind the Numbers." incidents involving burns and explosions are described. To see the Incident Report, click the link.

Learn more >

Pressure Vessels Ensure Safety

"How important is ensuring pressure vessel safety? Going by its definition, it is actually very important as the vessel, which comes in the shape of a closed container, is designed to hold gases or liquids at a pressure substantially different from the ambient pressure. If it doesn't, the consequences can be fatal."

The rest of the article quoted above offers a good overview of pressure vessel safety, briefly covering history, uses, inspection techniques, and operation standards. You can read the article on ASME's website at the link.

Learn more >

Why is toughness important for pressure vessel steels?

By Ramesh Tawari, CoDesign Engineering

For most pressure vessel steels, the stress range beyond the elastic limit, or the plastic range, represents about one-half the ultimate strength of the material. Engineering-wise, the behavior of material under load is dependent both on its ultimate strength and its plastic properties. The plastic properties permit local yielding in the presence of high peak stresses and give a more favorable stress distribution, thus eliminating the danger of failure that would occur in more brittle materials which lack this property. Material specifications for pressure vessel materials recognize this, and require minimum ductility, or plastic properties, as well as elastic and ultimate strength properties.

Learn more>

Ed. note: Ramesh Tiwari, CoDesign Engineering, sent this unsolicited article to STI-SPFA. He can be reached at rtiwari123@gmail.com.

Where to get Code interpretations

On page 40 of its Fall 2016 *Bulletin*, the National Board published a list of NBIC Code interpretations from 2013, which make for some interesting reading.

Following here is the introduction to the article, explaining where to get more Code interpretations:

Code Interpretations
The National Board Inspection Code (NBIC) and the American Society;of Mechanical Engineers' Boiler and Pressure Vessel Code (ASME B&PVC) each issue responses to technical questions submitted by their respective user communities. Interpretations clarify the meaning or intent of existing rules. Section 10 of the NBIC contains an index of all approved interpretations at the time of publishing. A comprehensive index of interpretations is published online.

The ASME B&PVC contains an index of all approved interpretations at the time of publication, along with the written interpretations for a given date range, at the end of each Section. All written B&PVC interpretations are also published online.

For more information on NBIC and ASME interpretations, refer to the websites listed above.

STI-SPFA's 2015 award-winning pressure vessels

STI/SPFA's Annual Product Awards recognize steel construction products and achievements by member companies. These projects demonstrate the positive qualities and flexibility of steel as the production material of choice for applications in the petroleum, chemical, agricultural and water infrastructure industries.

Propane Terminal
by CB&I, Houston

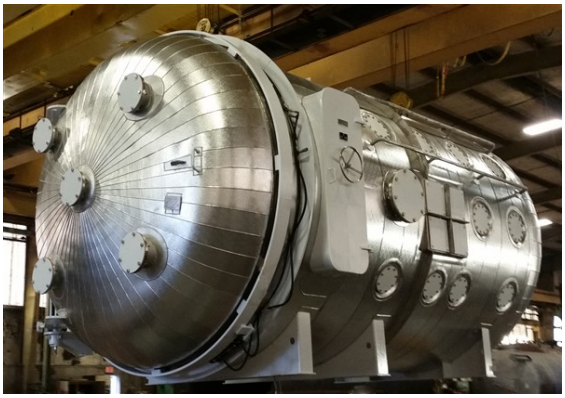
Each sphere holds 40,209 BBLS of propane at 250 psig. The 76'-0 sphere has an unusually high design pressure that requires that all welds be 100% Ultrasonic Tested(UT) for quality. Also due to the high pressure, the plates were designed to be very thick (the thickest plate was 1.843") and required that the spheres be field Post Weld Heat Treated (PWHT) by holding the entire sphere at 1,175º F for two hours. Before being placed into service, the propane spheres were then successfully hydro tested under pressure to 358 psig.

The Scope of Work for the spheres included the design and construction of the foundations, as well as the design and installation of the support columns including their fire proofing, multi ring deluge fire protection spray system, system piping from the sphere top to the ground, a galvanized stairway and field paint of the finished spheres and piping.

Refinery LPG Recovery Project
Boardman, Inc.

This pressure vessel project was fabricated using clad material of 7/8"thick SA 516-70N for the backer, with 1/8" thick 316L cladding. Internal design pressure is 235psig@500ºF; external design pressure is 15psig@366ºF. The overall height is 153', an inside diameter of 84", a total weight of over 263,000 lbs. Included inside this de-ethanizer are 35 double pass trays, along with 10 single pass trays. This vessel took more than 6500 man hours, and was completed in 11 months.

Stainless Steel Autoclave
Modern Welding of Georgia, Inc.



Stainless steel Autoclave with fully functional hinged door assembly for ease of product loading and unloading. Vessel used to evaluate propulsion components in a simulated high altitude environment. Material of construction is 316 stainless steel with 1/2", 3/4" shell thickness and 1" thick full length internal floor. Its size is 12 feet in diameter x 25 feet long. Weight is 41,000 pounds. Vessel contains two rectangular vacuum rated personnel access hinged doors, numerous real time viewing ports and two instrumentation console attachment banks for live data collection. Autoclave's exterior surface is insulated for maintaining controlled temperature demands. Vessel was manufactured to withstand full vacuum at low temperatures.

Learn more >

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Steel Tank Institute-Steel Plate Fabricators Association

STI/SPFA is a trade association representing fabricators of steel construction products and their suppliers. Member companies produce steel storage tanks, field erected water tanks, pressure vessels and heat exchangers, and pipe and pipelines. Their customers are from the petrochemical, power generation, food, pharmaceutical, fuels, wastewater and water transmission industries.

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