



Engineering Seal Analysis Lab

Taking 'Right the First Time' to another Level

In 2013, Hi-Tech Seals made the strategic decision to continue to reinvest capital in our technical capabilities with the construction of our engineering Seal Analysis Lab. The lab is housed in our head office, located in Edmonton, Alberta. It has become a vital component in our commitment to quality and providing superior value to our customers.

By investing in new technology, we have greatly increased our capabilities and service offering. The lab contains several pieces of key equipment; this equipment helps to ensure we deliver quality to our clients by providing the right product, in the right material, to the required specifications.

Optical Measurement Machines

We utilize both an automated and manual optical measurement machine in temperature-controlled environments. This allows us to reliably verify dimensional accuracy of a wide range of sizes and quantities. These machines are used extensively for quality control and reverse engineering purposes.

Mid Infrared FT-IR Spectrometer

The Fourier Transform Infrared (FT-IR) Spectrometer is used in all facets of our technical processes, from material identification and verification, to failure analysis and trouble shooting. By exposing a sample to different wavelengths of infrared light, then measuring

which wavelengths are absorbed, the FT-IR machine can convert this spectrum data into a readable spectrum. The spectrum is then compared against a library of spectra to find a match. We are continually adding and updating our spectra library to expand the accuracy and capability of this versatile instrument.

Instron Universal Testing Machine (UTS)

The UTS machine is used to evaluate mechanical properties of materials. With the capability to test both elastomers and thermoplastics, verification that materials are within specified requirements is achievable. The UTS provides tensile strength, elongation, and modulus values.

Thermo Scientific Convection Oven

The precision oven enables verification and testing of key properties, such as heat aging and compression set. It also provides us the ability to perform in-house heat treatments on products and materials.

In addition to this technology, we have a hardness tester, surface finish tester, specific gravity tester, and an optical flat tester to round out our equipment library. Some of the key tests, analysis, and services our dedicated engineering and drafting staff use the equipment and lab for include:

Failure Analysis Reports (FAR)


When provided with failed seal or gaskets samples and application conditions, we use our experiences, expertise and lab equipment to perform failure analysis for our customers. FARs include a root cause analysis and a product and material recommendation.

Positive Material Identification (PMI)

We can perform PMI on unknown elastomers, plastics, and other materials. Using the customer provided material samples and various lab equipment, we can accurately analyze the sample and determine the base material.

Dimensional Inspection Reports

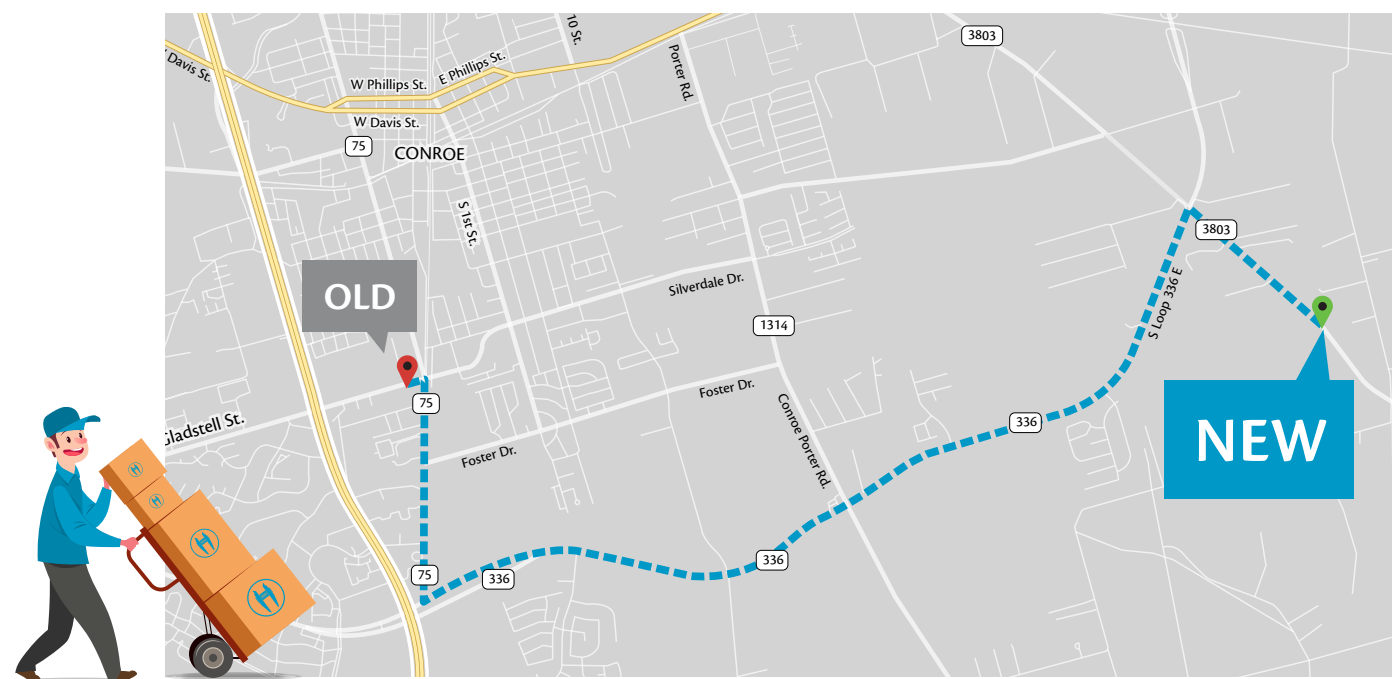
We utilize our optical comparator equipment and other tools to quickly and reliably measure components to a high level of accuracy. This allows us to determine if parts are within the provided specifications. This information can then be turned into a report for the customers use.

Additional analysis, reports, and services can be performed using our Seal Analysis Lab, including drafting services and comparative material analysis. For more information or to request an engineering service, email engineering@hitechseals.com or contact your local Hi-Tech Seals representative. 

New Conroe Location

Not a Far Move, But A Big Change

We are proud to announce that our Conroe, TX., location is moving to a new facility. Our new location will be open for business by May 1st, 2019. Although we do expect to be operational during the move, we kindly ask that our customers have extra patience with us during this time of transition. For those of you who will require counter service during the move, please call in advance to ensure that we will be able to assist you properly.



New Address: Hi-Tech Seals, 12064 FM 3803, Conroe, TX 77301. USA

The new facility is not far from our current location, only a 10-minute drive apart, but it's a big change. The new facility spans over 11,000 sq. ft. Over time, this will allow us to house more stock and offer additional services to all our customers. For more information on the move, contact us today. 



Technically Speaking


Our Assurance of Expertise & Quality

With the rapid globalization of markets, the ability to locate and procure products from any corner of the world with a few clicks has become the norm. Within this environment, nefarious sorts can hide behind well adorned websites and unsubstantiated quality claims to secure orders for products at cut-rate prices. Utilizing sub-standard procedures, environments, and ingredients, they hedge their bets on the slim hope that their product is never exposed to an application where their malfeasance will be uncovered.

At Hi-Tech Seals, we deal in the business of reputation, both our own, and just as importantly, that of our customers'. We understand that often one's reputation is not remembered by the innumerable times product is successfully implemented, but rather, by the one or few instances where a product failed to meet its requirements. Hence, we focus our endeavors, and our investment, on the quality and accuracy of our products.

Part and parcel to the last statement comes a well-established program that we proudly follow on all new products, our Sample Inspection (SIR) program. For all new custom products developed in conjunction with us, an established inspection is analyzed by engineering staff to verify accuracy. This process is initiated long before product has entered our building and carries on through to final production.

The first step to successfully implementing our SIR program is ensuring that material and design meet our customers' criteria and fall in line with accepted manufacturing standards. From there, we encourage our customers to proceed with an initial limited release of the product for evaluation. Don't be fooled! This is not due to a lack of confidence in our ability to meet specifications. This is to provide our customers with a limited exposure to the full breadth of the project. They may tweak or refine their design to factors uncovered upon initial testing. After receipt of the sample run, our engineering staff will utilize equipment mentioned in the cover article "Engineering Seal Analysis Lab". This equipment examines the finished product compared to the parameters originally agreed upon and confirms that it is in line with our expectations before being sent to our customer.

From this point, our customer is encouraged to test the product as thoroughly as they require, ensuring confidence that they have been provided a winning solution. Only when satisfied with the performance of the design in their desired application, will we proceed to full production. Detailed incoming inspection will be completed on the production order as well, simply to confirm the repeatability of the desired outcome. 

Lease Site Designation Management Services

Understanding The Process Involved

Hi-Tech Seals offers gasket measuring services in the field. A trained and knowledgeable team member will visit the tank, vessel, or facility sites to identify and measure components. On average, the identification and measuring process takes between 3 to 5 hours. This time varies depending on the equipment and the number of components to be measured. Once the gaskets have been identified and measured, our team can manufacture high quality replacement parts and store information for your future use.

Expanded PTFE is a popular sheet material utilized by Hi-Tech Seals. This material is one of the most tightly tested sealing gasket materials in the world. Expanded PTFE does not degrade or deteriorate, making it an excellent choice. Our customers have had great successes with expanded PTFE gaskets. These successes include applications that previously couldn't be sealed and where gaskets have not lasted more than a couple of months.



In conjunction with the measurement of cut gaskets, we can further aid in the efficiency of future turn-arounds off sites through consolidation of the numerous other consumables required. While on site, our staff can evaluate and integrate your cut gaskets, anodes, pigtails, isolation kits, studs & nuts, and spiral wound gaskets into our unique Lease Site Designation Management System (LSDS). Subsequent turn-arounds would simply require a reference to your site number for our staff to know what products you may require.

Dependent on availability and travel time, a minimum of 3 days' notice is required to book field services. If required, field service technicians can measure multiple sites during one visit. For more information, contact a Hi-Tech Seals' representative. [H](#)

Enhancing Our Gasket Manufacturing Capabilities

To Serve You Better

We continually look for ways to improve our capabilities so that we can better serve our customers. We have recently invested in two new tools for our Flashcutters that do just that. The first tool is a hole punch insert. This allows us to produce cleaner, more symmetrical holes.

The second insert tool for our Flashcutter is a holder and blade called the Drag Knife Tool. This tool allows us to increase the speed and precision in which we cut certain materials. For more information on these and other gasket manufacturing capabilities, please contact a representative near you. [H](#)



Understanding Abbreviations

Making Sense of it All

With all the abbreviations in use today, have you ever read an email, document, or piece of literature and not understood all the acronyms and abbreviations referenced? If so, you are not alone. This is the third edition of our Understanding Abbreviation series, helping people make sense of products and product related abbreviations we encounter on a daily basis. [H](#)

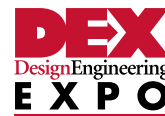
Abbr.	Full Name	Description
RGD	Rapid Gas Decompression	RGD is when a seal fails due to a quick release of accumulated gas from the seal. This causes the gas trapped inside the seal to expand and rupture the seal.
ED	Explosive Decompression	ED is commonly referred to as RGD, please see definition above.
MWD	Measurement While Drilling	MWD incorporates a measurement tool into the drill string to provide real time information about vertical depth and drilling system orientation.
BOP	Blow Out Preventer	A BOP is a specialized valve on top of a well that is used to control and monitor wells to prevent uncontrolled release of oil and gas.
SAG D	Steam Assisted Gravity Drainage	SAG D is a drilling technique that is used to extract crude oil by using steam to heat the oil and reduce its viscosity.
BCD	Bolt Circle Diameter	BCD is a measurement of a circle that goes through the center of the bolt or screw holes in a round pattern.
FF	Full Face	FF is a type of pipe flange gasket that covers the entire flange and comes with bolt holes.
RF	Raised Face	RF is a type of pipe flange gasket that has no bolt holes. It is usually placed inside the flange bolts and around the pipe bore.
ID	Inside Diameter	ID refers to the measurement of the inner diameter within a tube, pipe, seal, O-ring, etc.
OD	Outside Diameter	OD refers to the measurement of the outside diameter of a tube, pipe, seal, O-ring, etc.
C/S	Cross Section	C/S refers to the cross-section dimension of a seal, determined by subtracting the ID from the OD and dividing by 2.
HIP	Hot Isostatic Pressing	HIP is a controlled process used to reduce the porosity of metal and increase the density of many ceramic materials.
FEA	Finite Element Analysis	FEA is used for predicting how a material will interact with forces such as heat, vibration, and fluids.
MTR	Material Test Report	An MTR outlines the basic physical properties of a material.
DRF	Drawing Request Form	A DRF is a form used when making new drafting or drawing requests.
BTR	Batch Test Report	A BTR outlines the basic physical properties of a specific batch or lot of material.
LSDS	Lease Site Designation Management System	LSDS is a unique offering where we evaluate and integrate cut gaskets, anodes, pigtails, and other component requirements into one simple re-ordering system. This system includes our gasket measuring services.
FAI	First Article Inspection	FAI is the examination of the first manufactured part to ensure the measurements and quality meet the drawing specifications.
PPAP	Pre-Production Approval Process	A PPAP is primarily used in the Automotive Sector. They are the initial product samples, test data, and documentation to support production repeatability, depending on the PPAP level, to maintain a certain quality level.
CIP	Clean-In-Place	CIP is a process of cleaning the interior surface of pipes, vessels, machinery, etc. without disassembly.
SIP	Sterilization-In-Place	SIP is the method of sterilizing the internal surfaces of a sealed system without disassembly.
PAP	Part Approval Process	PAP is a process that is used to approve initial samples or test parts prior to production.

We'll See You There!

We are getting ready for another busy trade show season. We will be attending shows in various cities across North America. If you're in the area, be sure to say "Hi" and learn what's new at Hi-Tech Seals.

Design Engineering Expo (DEX) – Winnipeg, MB, April 3rd

- DEX is a one-day regional tradeshow. It provides a space for engineers, product developers, machine builders and systems integrators to network, discuss, and ask for advice on the latest technologies and applications to improve their businesses.



Offshore Technology Conference (OTC) – Houston, Texas, May 6-9th

- The OTC focuses on leading-edge technical information and developments, from exploration through to production. Visit us in the NRG Arena, booth #7015.



Oil & Gas Polymer Engineering Conference – Houston, Texas, June 4-5th

- This is a two-day event where manufacturers, operators, contractors, and engineers learn about new technologies, discuss future challenges, and share experiences. Visit us as booth #6.



Louisiana Gulf Coast Oil Expo (LAGCOE) – New Orleans, LA, October 9-11th

- LAGCOE's vision is to be a robust, sustainable community of energy companies and volunteers that promote energy education and awareness; connects businesses with opportunities and; highlights the Gulf Coast's technical innovations to the world. Visit us at booth #320.



MILESTONES

We are pleased to share with you employees that have achieved milestones of service in recent months.



Ramil Dela-Cruz




Derek Thomas



Matt St.Germain



Tony Boken

From all of us at Hi-Tech Seals, we thank you for your hard work and dedication over the years. 

O-Ring Flip Chart & Seal Catalogue

Back by Popular Demand



Our O-ring flip charts are an easy way to help determine what size O-ring you have. Simply move your O-ring over various image outlines to find the right size that matches. This chart includes sizes from O-ring series O, 1, 2, 3, 4, as well as O-rings for tube fitting bosses.

Our Seal Catalogue, Vol. 4 will be available soon in a print and digital version. Contact Hi-Tech Seals today for your copy. The catalogue included updates on:

- New products
- Updated products and material information
- Enhanced manufacturing and engineering capabilities

DEFINING TERMS

Technical Terminology and What They Mean

Batch

A quantity of a certain material produced in a single manufacturing run. Each batch represents a homogenous material that has unique specifications.

Chemical Bond

An attraction between atoms, ions, or molecules which enables the formation of chemical compounds. Often occurs through an electrical gravitation between oppositely charged ions.

Density

A measurement that compares the amount of matter an object has to its volume. It is normally measured in g/cm^3 . Density is also known as specific gravity.

Homopolymer

A polymer that consists of a single monomer that is repeated many times.

March 2019 Tech Talk

K E H M T E B A W W B H S T S
R S U B S S W Z G N C I B Q I
B A L G N I R E E N I G N E S
F M D R O R R K B T F E P C Y
L O T N U L O P R U F O K K L
I H A P G B A A R T E E K Q A
P T Z A F H D T P O A E D O N
C O V N U E T D A R G W F J A
H N S T S X E R Y C F R G U L
A J E H U D A A K W L P A G A
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V C P J I N K V E J H K Z S K
Z X N E W L O C A T I O N F K
E Y A G U I L C L C Y E R F N

HTS Word Search

Complete the word search and you could win a Bluetooth Speaker from **BOSE**

BOKEN	SEAL CATALOGUE
EXPANDED PTFE	TRADESHOW
SEAL ANALYSIS	ENGINEERING LAB
THOMAS	NEW LOCATION
CONROE	SIR PROGRAM
FLIP CHART	TREATER

Please fax your responses to 780.409.9149 by April 15th, 2019.

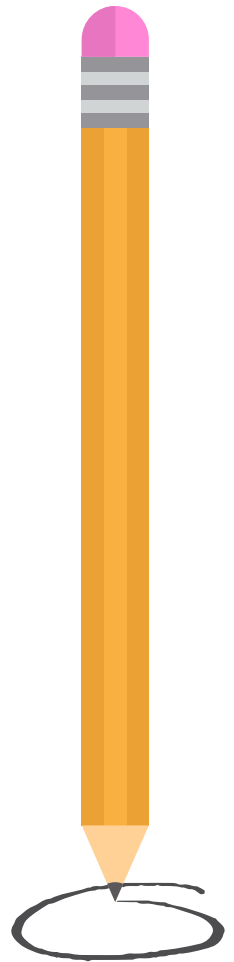
Name: _____

Company: _____

Location: _____

Day Time Phone #: _____

Congratulations to last edition's word search winner, Colin Teague!



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