

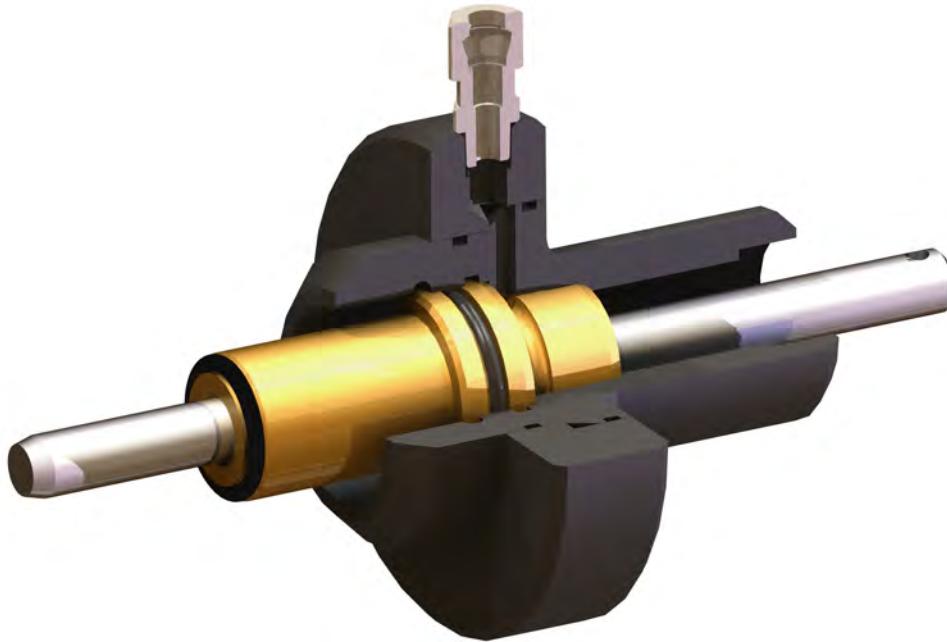
N-SEAL

BY MCI SOLUTIONS

The logo features the text 'N-SEAL' in a bold, orange, sans-serif font. Below the 'N' and 'S' is the text 'BY MCI SOLUTIONS' in a smaller, grey, sans-serif font. To the right of the text is a grey graphic element consisting of a horizontal line that turns downwards and then into a stepped, staircase-like shape that tapers to the right.



Company Profile



About Us

MCI Solutions (MCI) is a manufacturing leader in chemical injection technologies, providing unique solutions to common problems found in the oil and gas industry. Our new assembly plant is located in Fort St. John, B.C. and is 100% Canadian owned and operated.

MCI provides high tech solutions for the oil and gas industry including the industry's most energy efficient solar/ electric chemical injection pumps. Our patented N-Seal adaptor, designed to replace compression packing in existing gas drive systems, provides the industry's first secondary containment seal technology. The N-Seal systems eliminate the use of traditional packing by introducing spring energized seal technology. This unique technology eliminates all uncontained leaks, routine adjustments and greatly reduces drive gas requirements. No leaks, No fuss, No mess.

Our entire focus is on improving chemical injection methods. This translates into a high standard of quality throughout the entire product line producing operational reliability, energy efficiency, and environmental conservation. MCI's *quality first* commitment equates to real savings and unparalleled payback schedules.

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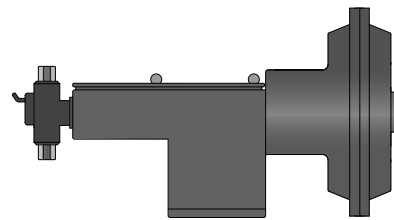
Adaptor Compatability Chart

N-Seal adaptors are available to suit all 5100 Series drives. This compatability chart is designed to easily identify which N-Seal adaptor fits an existitng drive:

N-SEAL 5100 Series

- The following list demonstrates which drives are compatible with our 5100 Series Adaptor*:

Manufacturer	Manufacturer Model #
Texsteam	5100 Series
Arrow	510 Series
Bruin	BR5100 Series
CVS	51 Series
Flomore	5300 Series



TYPICAL 5100 DRIVE

* Every attempt has been made to provide a complete list. If the Manufacturer's Model # for any: 5100, 4300 or 1200 Series drive is not listed please contact MCI Solutions for more information.

■ **SECONDARY CONTAINMENT TECHNOLOGY.**

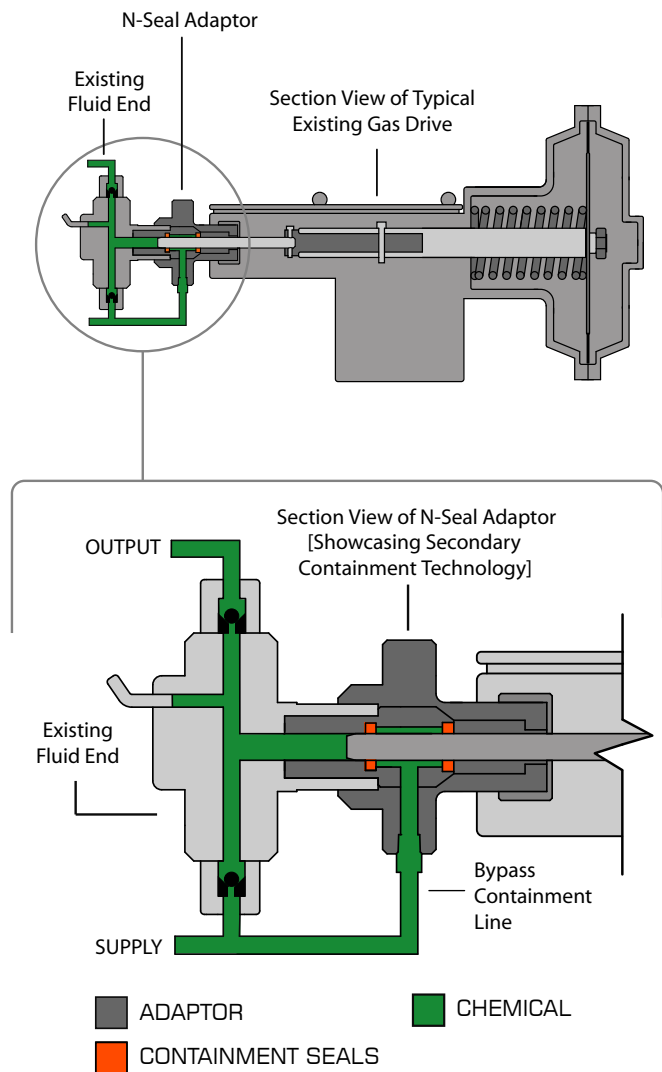
IN THE EVENT OF A SEAL FAILURE OR CHEMICAL BYPASS THE CHEMICAL IS CONTAINED AND PIPED BACK TO THE SUCTION SIDE OF THE PUMP, ELIMINATING LEAKS TO THE OUTSIDE ENVIRONMENT.

■ **GREATLY REDUCED SYSTEM FRICTION.**

AN INNOVATIVE SECONDARY CONTAINMENT SEAL TECHNOLOGY ELIMINATES THE USE OF PACKING WHICH GREATLY REDUCES THE SYSTEMS FRICTION AND PARASITIC FORCES WHICH IN TURN ENSURES GREATER RELIABILITY WITH LESS MAINTENANCE .

■ **DRIVE GAS REQUIREMENTS ARE REDUCED BY 50% ON WELL PRESSURES OF 500 PSI AND BELOW.**

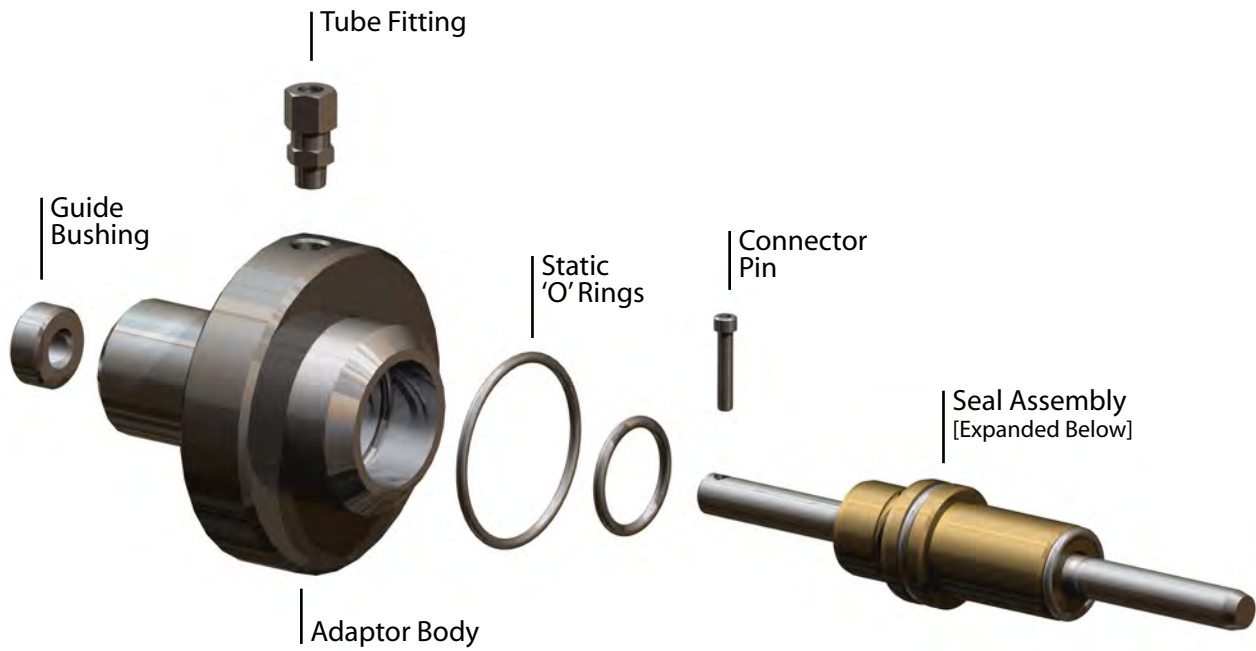
Section View of N-Seal Technology



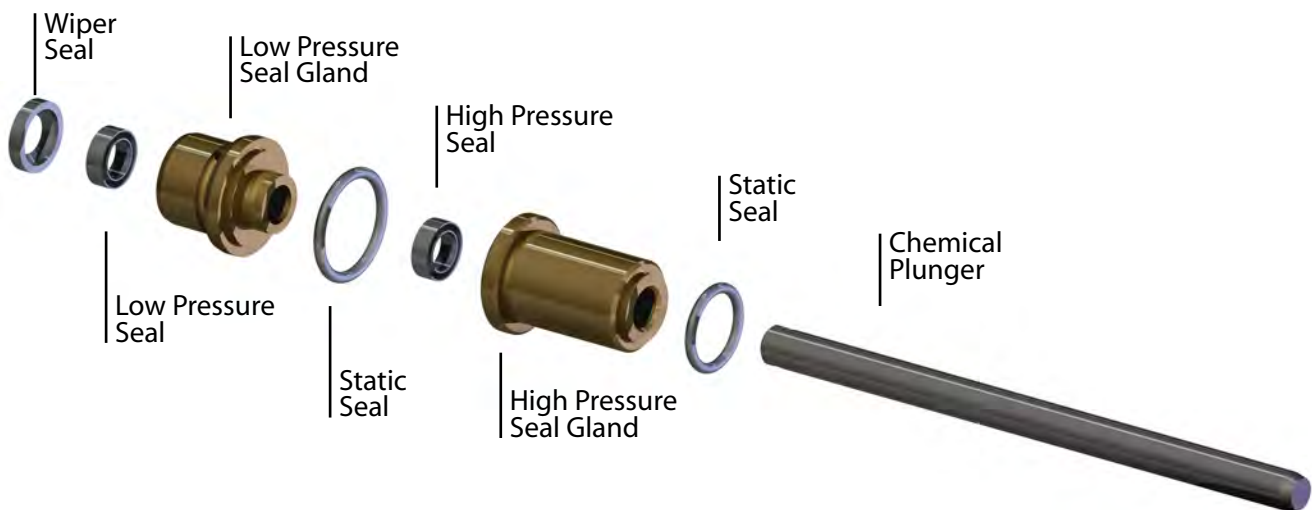
Additional Benefits

- No adjustments required throughout the life of the seal.
- Long lasting seal design technology.
- Eliminates stalling due to excessive friction [overall friction is reduced by 90% with the installation of N-Seal adaptor and a light gauge return spring].
- Designed to mount on all 5100 series pumps without any modifications to the existing equipment [add lighter return spring].
- Routine maintenance is greatly reduced. Seal kit replacements are recommended semi annually.
- Compatible with all conventional fluid ends [Texsteam, Arrow, Bruin etc.].
- Increased economic and environmental performance.
- Cartridge style replacement seal kit assemblies allow for quick change out with no adjustments required.

Main Adaptor Body - 5100 Series



Seal Assembly Expanded



N-Seal Economic Performance

Estimated Annual Savings Using N-Seal Adaptor Technology:

1. Drive Gas Volume Reduction:

A 5100 style gas-drive pump may use as much as 1.0 mmcf per year. The *N-Seal* technology reduces friction on the suction stroke by as much as 90%. This reduced friction will reduce the required volume of drive gas by as much as 50%.

ESTIMATED SAVINGS: \$2,500.00 per year

2. Reduced Chemical Losses:

Packing seals will allow upwards of 100 litres of chemical to escape, when adjusted properly. Normal wear/ use will allow substantially more to escape as “leakage”. An estimated average annual loss of 200 litres per year is considered conservative. The *N-Seal* system will reduce such losses to near zero.

ESTIMATED SAVINGS: \$500.00 per year

3. Lower Stroke Rate:

Because friction is substantially reduced, the stroke rates can be set lower without “stalling” the pump. Operators no longer have to set the stroke rate higher than necessary to try and prevent their pumps from stalling as environmental conditions vary. Setting the stroke lower will save at least 1 litre of chemical per day. Chemical prices vary widely from \$1 per litre of methanol up to \$20 per litre for certain special production chemicals.

ESTIMATED SAVINGS: \$600.00 per year

4. Reduced Maintenance and Servicing Costs:

An operator typically spends upwards of 30 minutes each week, checking, adjusting, cleaning up, maintaining, repairing and replacing chemical injection pumps. The *N-Seal* system will reduce this time by more than 50% due to the reliability of the device.

ESTIMATED SAVINGS: \$500.00 per year

5. Reduced Environmental Exposure:

The average cost of reclamation of a gas well lease has risen beyond \$100,000.00. The major contributor to pollution is chemical spills and injection pump leakage on the average gas well today. The containment system with the *N-Seal* technology will reduce exposure substantially.

ESTIMATED SAVINGS: \$1,000.00 per year
(10 year lease life)

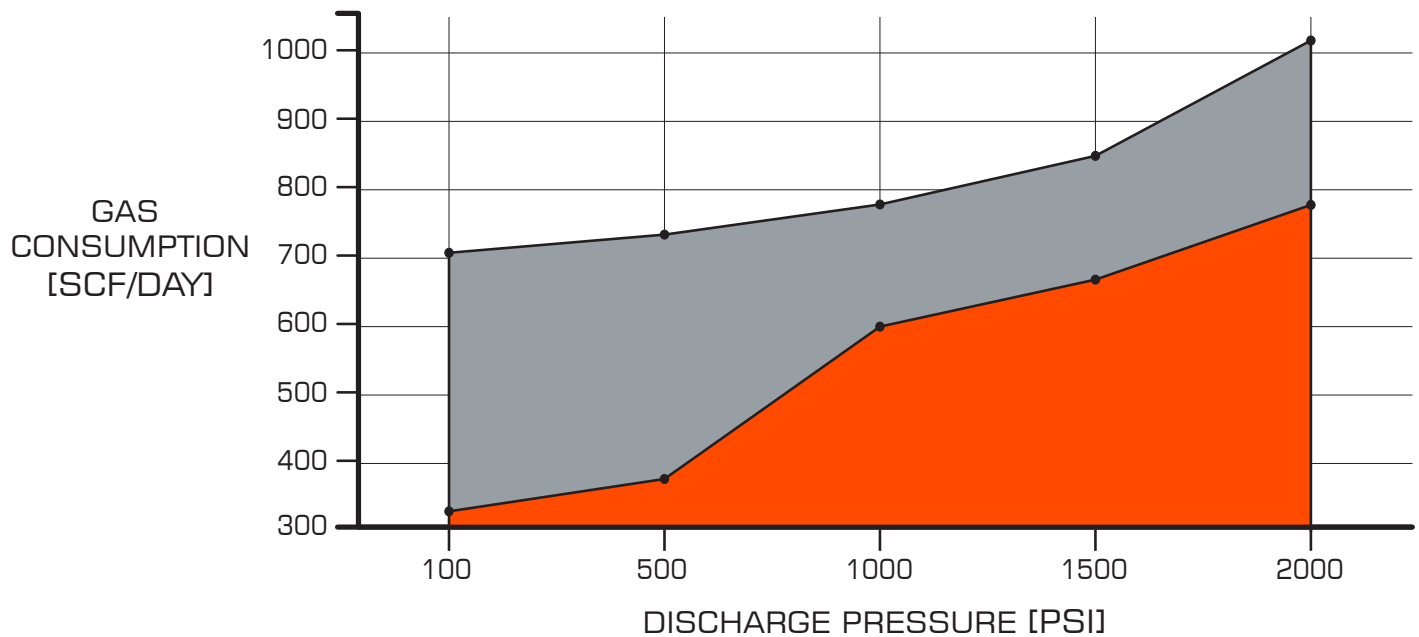
TOTAL ESTIMATED ANNUAL SAVINGS: \$5,100.00



N-Seal Environmental Performance

- This graph demonstrates the reduction in drive gas when using the N-Seal Adaptor vs Packing on an existing 5100 Series gas drive injection system.
- Using N-Seal technology drive gas consumption is reduced by 50% on all wells with line pressure of 500 PSI and below.
- Overall system friction is reduced by 90% using the N-Seal Technology when compared to conventional packing technology.

Drive Gas Consumptions required to operate a
Texsteam (or equivalent) 5100 gas drive chemical injection system



- DRIVE GAS REQUIREMENTS WITHOUT N-Seal TECHNOLOGY
- DRIVE GAS REQUIREMENTS USING N-Seal TECHNOLOGY AND A LIGHT GAUGE RETURN SPRING **

** N-Seal Technology greatly reduces the systems overall friction which allows the use of a much smaller [Lighter gauge] return spring [80% LESS SPRING FORCE REQUIRED]. This results in an extra reduction in drive gas requirements

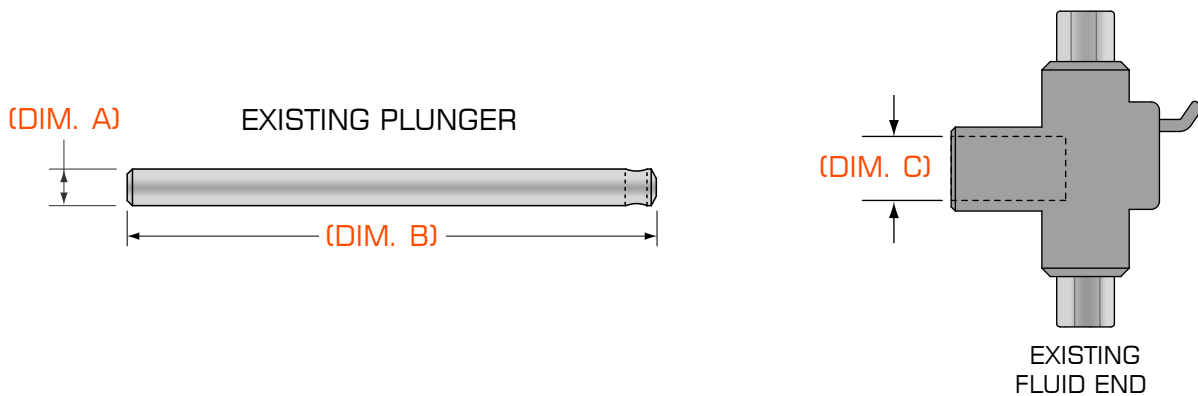
Adaptor Series Order Key / Configurations

N-Seal adaptors are available to suit all 5100 Series pneumatic drives as well as their existing fluid end configurations. This reference chart has been designed to offer assistance in matching the required adaptor series configurations to the existing equipment.

To ensure N-Seal compatibility with existing equipment and to simplify the ordering process the following information is required for proper adaptor selection:

- Gas Drive Body Style - N-Seal adaptors fit 5100 series drives. [Texsteam, Bruin, Arrow, CVS, Etc]
- Plunger diameter that suits existing fluid end or plunger diameter of new fluid end. [DIM. A]
- Existing or new plunger length used in gas drive series. [DIM. B]
- Packing gland diameter of existing or new fluid end. [DIM. C]

With this information refer to the N-Seal Configurations Chart below.



N-Seal Configurations Chart

Drive Series	Plunger Dia. (DIM. A)	Plunger Length (DIM. B)	Seal Gland Dia. (DIM. C)	Application
5100	1/4"	6.0"	7/8"	Chemical / Methanol
5100	3/8"	6.0"	7/8"	Chemical / Methanol
5100	1/2"	6.0"	1.0"	Methanol only

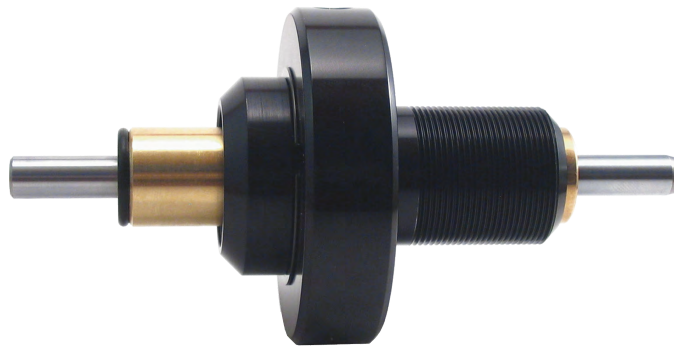
N-Seal Adaptor Introduction

Existing Technology

Most commonly applied pneumatic chemical injection systems use a positive displacement pump to inject fluids. A positive displacement pump causes a liquid to move by trapping a fixed amount of fluid and then forcing (displacing) that trapped volume into a discharge line with the use of a plunger. To prevent this fluid from escaping past the plunger into the environment a common practice is to use compression packing seals. These seals are among the oldest sealing technologies available.

Compression sealing is accomplished by tightening a gland along the top ring of a stuffing box so that the packing is compressed onto the plunger. This technology is prone to continuous leaks and requires constant adjustment to control the leak rate. As packing is compressed the "break" effect on the plunger becomes enormous, increasing the "stall potential" strain on the injection system and greatly increasing drive gas emissions.

As the packing wears leaks continue to increase. Current technologies do not contain these chemical leaks. Consequently they are released to the outside environment causing environmental damages and economic losses as these chemicals are very costly.



N-SEAL ADAPTOR

The N-Seal Solution

MCI Solutions has developed and patented unique seal technology that virtually eliminates the friction that is created with the use of compression packing, [90% less friction] while effectively sealing the plunger and eliminating leaks to the outside environment. The N-seal adaptor is designed to easily install on most existing gas drive systems [Texsteam, Arrow, Bruin, Etc] and can be used in all pumping applications. The adaptor fits between the existing fluid end and existing gas drive and requires no adjustment to the existing equipment for installation.

N-Seal adaptors use reliable, long lasting, spring energized seal technology to offer a true sealing solution. A small amount of high pressure seal bypass is expected throughout the life of the seal. In order to effectively deal with any chemical bypass the N-Seal adaptor has been equipped with the industry's first secondary containment technology. Secondary containment is made possible by introducing a second, low pressure, containment seal the plumbed bypass containment line. Should any chemical bypass the high pressure seal it collects in the chamber between the high and low pressure seals and is redirected back to the suction side of the fluid end, ensuring no uncontained leaks to the environment.

The adaptor is conveniently assembled as one complete unit with cartridge style seal assemblies allowing quick and accurate seal replacements, with no adjustments/ maintenance required throughout the life of the seals. We recommend that the return spring be replaced semi annually for optimal drive gas savings.

Additional Information

Additional information including product installation manuals for the N-seal adaptor series as well as other products offered by MCI Solutions can be found on our web page at:

■ www.mcisolutions.ca

LIMITED WARRANTY

MCI SOLAR MFG. LTD. ("MCI") warrants to the purchaser of its **N-SEAL** line of products, including the *5100 Series* and the *4300/1200 Series* seals and adaptors (the "Products"), to be free of defects in materials and workmanship under normal usage for a period of one (1) year from the date of purchase. MCI does not offer an "in-out" warranty. It is incumbent upon the owner or the owner's assigned agent to contact MCI for a Return Material Authorization (RMA) number and deliver the product to MCI, Fort St. John, B.C., for warranty evaluation.

The purchaser is responsible for the compatibility of the product with any non MCI Product and, consequently, this warranty does not apply if the product and its components including the seal assembly and plunger are not compatible with any non MCI Product with which the product is being used. In addition, this warranty does not apply: (i) to normal wear of the dynamic seals, (ii) to damage caused by accident, abuse or misuse, (iii) to damage caused by service performed by anyone who is not authorised to do so by MCI or (iv) to a product or part that has been modified without the written permission of MCI.

If a defect exists, at its option, MCI will (i) repair the Product at no charge, using new or refurbished replacement parts, (ii) exchange the Product with a Product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original Product or (iii) refund the purchase price of the product. The old Product will become the property of MCI.

MCI MAKES NO OTHER WARRANTY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED. MCI WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCES WHATSOEVER TO THE PURCHASER FOR ANY DAMAGES RELATING TO LOSS OF PRODUCTION, LOSS OF PRODUCT, ENVIRONMENT DAMAGE, OR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES REGARDLESS OF WHETHER ARISING IN CONTRACT, STRICT LIABILITY, OTHER TORT OR OTHERWISE. THE EXCLUSIVE REMEDY OF THE PURCHASER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE SALE, USE OR HANDLING OF ANY PRODUCT WHETHER IN CONTRACT, WARRANTY TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, WILL NOT EXCEED THE PURCHASE PRICE PAID, OR AT MCI'S SOLE ELECTION, THE REPAIR OR REPLACEMENT OF THE PRODUCT.

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Solar/ Electric Chemical Injection

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- **ZERO DRIVE GAS EMISSIONS.**
- **ZERO CHEMICAL LEAKS.**
- **ZERO CHEMICAL OVER INJECTION.**



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