



## CRS Reconditioned AFS I Cartridge

202920

### Instructions for Return and Operation Guide



**Document Number**  
**995102 Rev\_B**

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## **Safety Notices**

## **WARNINGS**

**WARNING** notices must be read carefully and understood. Improper use of this product can cause harm or death to personnel and damage to property!

### **Recycling**



For recycling contact your local CRS Sales Office or Distributor.

## Warnings

### WARNING



**Wear safety glasses.**

**Leak test all fittings when using hazardous or flammable gases.**

**Do not use above 13.8 bar (200 psi).**

**Special precautions might be required when using hydrogen. Consult local regulations and your company's safety procedures.**

**The Advanced Filter System I is intended to remove 50 ppm or less of oxygen, water, or hydrocarbons (C5 and above) from helium and other inert gases, nitrogen or hydrogen at flow rates of 2 L/minute or less.**

**Do not use to remove more than 50 ppm of oxygen! Rapid heating of the oxygen adsorbent will occur – and very high temperatures can result.**

|                |             |   |
|----------------|-------------|---|
| <b>Limits:</b> | Temperature | 15°C to 35°C  |
|                | Pressure    | 0.75 to 13.8 bar  |
|                | Gas Supply  | < 50 ppm O <sub>2</sub> , H <sub>2</sub> O and Hydrocarbons |
|                | Flow Rate   | < 2 L/min   |

## Operation Manual

This operation manual applies to the following products

- CRS Advanced Filter System I,  
Reconditioned Cartridge  
Item No. 202920

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## Reconditioned Cartridge Setup

Please read through this entire manual to familiarize yourself with the procedures for AFS I Cartridge Replacement and Spent Cartridge Return before beginning setup. Use the same degree of care as you would with any precision instrument.

1. Remove the Reconditioned AFS I Cartridge.
2. Inspect the parts. If there is any visible damage contact your supplier immediately.



## Procedure Overview

1. *Before any return a Return Authorization must be obtained from CRS or your CRS Distributor. Filters that have been exposed to toxic or hazardous materials cannot be returned and must be disposed of as hazardous goods in compliance with local regulations.*
2. Replace your spent AFS Cartridge with the Reconditioned Cartridge supplied.
3. Obtain a Return Material Authorization from your supplier or CRS. Some suppliers may include the RMA with the packing material.
4. Prepare the spent AFS Cartridge for shipment (see page 8).
5. Return the spent AFS Cartridge in the inner box provided (See Page 9).

## Mounting the Filter Cartridge

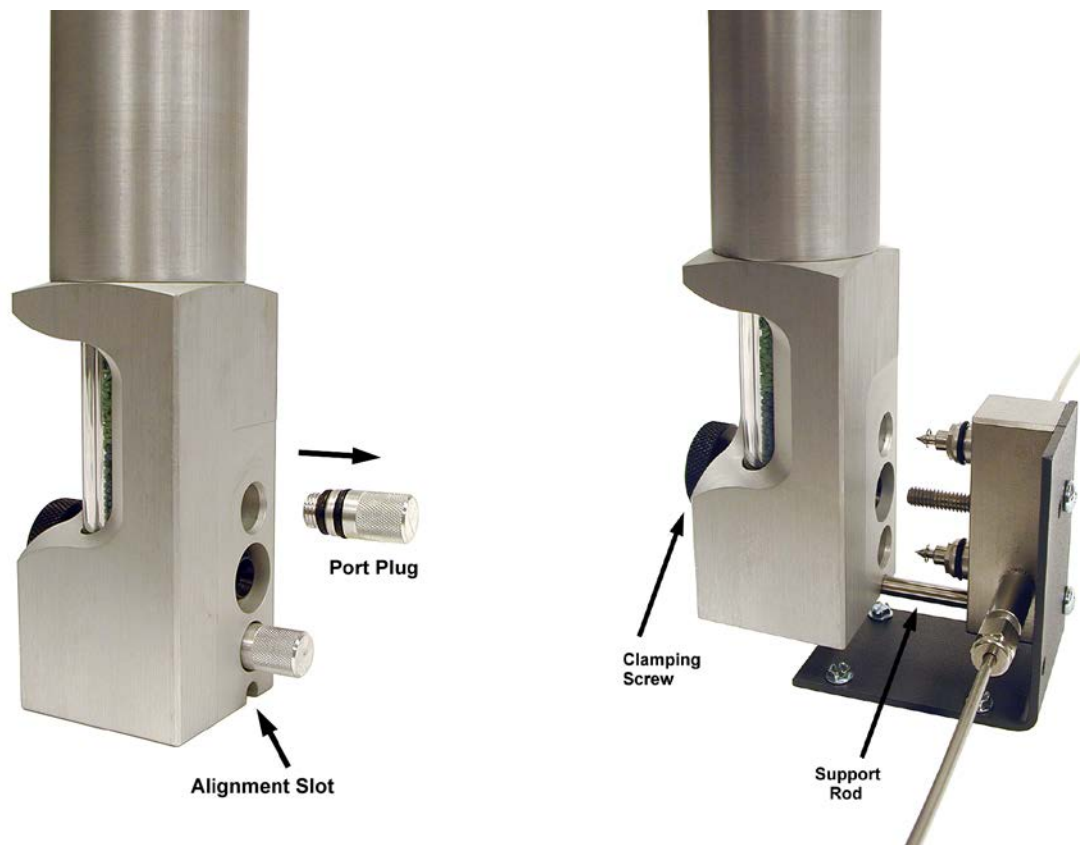
The cartridge is protected in shipping by two port plugs with O-ring seals. In addition, two internal aluminum cups limit the exposure of adsorbent during assembly, until they are pierced as the cartridge is mounted. Exposure to air of several minutes during filter installation or change will not damage the adsorbent.

1. Remove the two port plugs. Save these plugs in case the cartridge is to be returned in an exchange after the cartridge has been consumed.
2. Rest the cartridge on the bottom support rod of the manifold, and slide it forward until the two ports of the manifold slide into the sockets of the cartridge. Be careful to point the check valve needles into the port holes so that they do not scratch the back of the filter.
3. Push the cartridge forward, engage the clamping screw and tighten thoroughly.
4. Leak check the fittings.

### WARNING

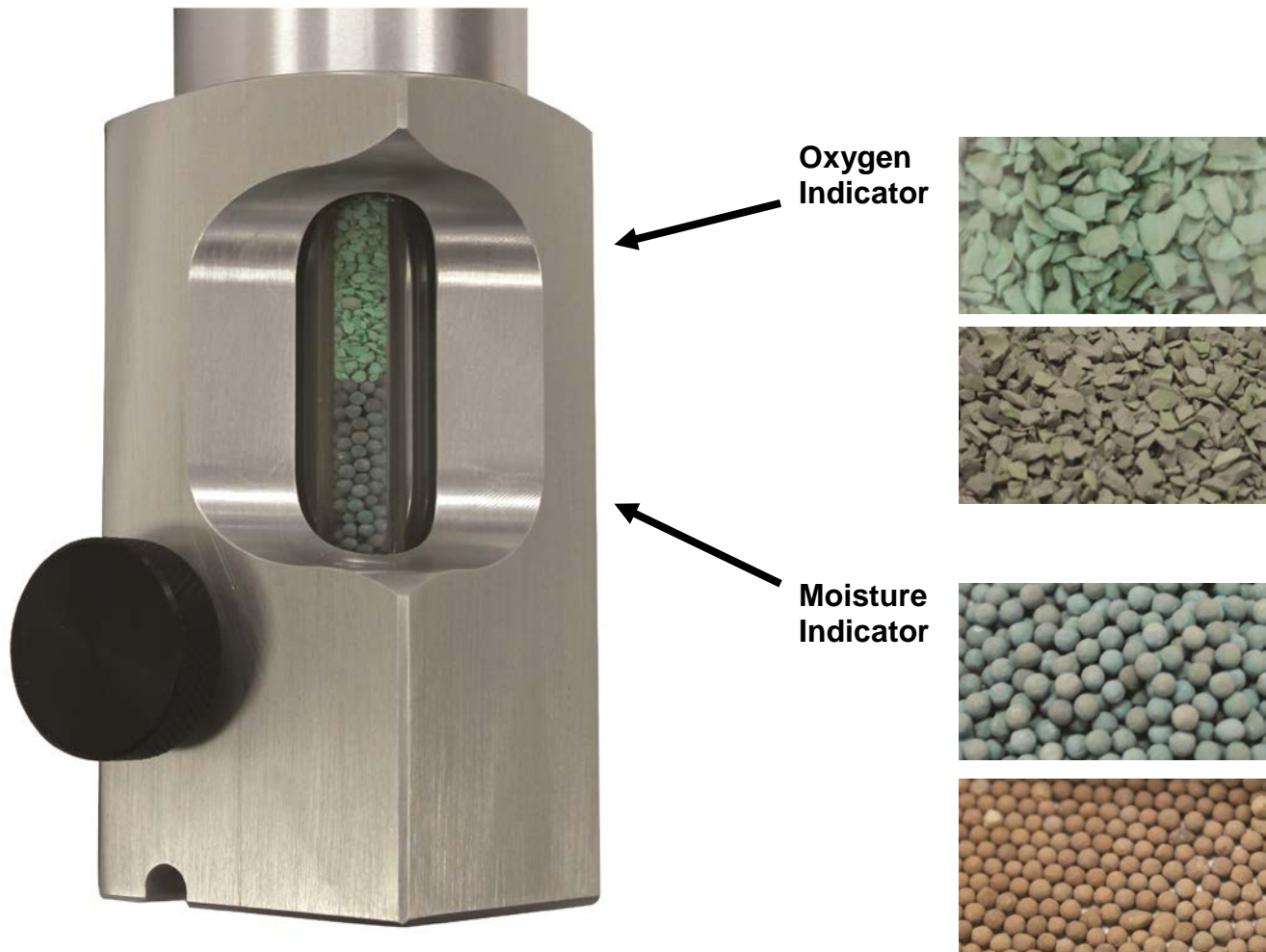
If you are using hydrogen or hazardous gas additional special procedures may be called for. Consult your company's safety procedures.

5. The filter cartridge is shipped full of helium, but the gas lines should still be purged with a gas flow for at least several hours after the initial installation. Moisture levels downstream of the instrument may continue to improve for several days.



## Operation and Maintenance

1. The Advanced Filter System I has two visual indicators, one for oxygen and one for moisture. When the green indicator changes to gray, indicating oxygen contamination, or the blue indicator changes to light brown, indicating water contamination, the filter cartridge should be changed.



## Preparing the spent cartridge for Return Shipment

### WARNING

Before any return a Return Authorization must be obtained from CRS or your CRS Distributor. Filters that have been exposed to toxic or hazardous materials cannot be returned and must be disposed of as hazardous goods in compliance with local regulations.

Never open the cartridge or remove the contents!

The AFS contains less than 30 grams of high-capacity oxygen adsorbent, which is classified as hazardous for transportation as follows:

Shipping Name: Self-heating solid, inorganic, n.o.s. (Activated Copper Oxide and Manganese Oxide) Hazard Class: 4.2 UN ID: 3190 Packing Group: II

Even after the oxygen indicator in the AFS has changed color, indicating that the filter bed has been oxidized, substantial chemical activity can remain. Therefore, both spent and new filter cartridges must be shipped as dangerous goods unless they are completely deactivated.

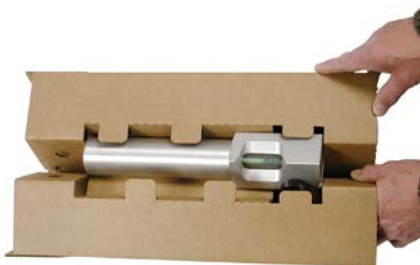
1. Because the quantity of adsorbent is less than 30g. the AFS may be shipped under the IATA rule for Dangerous Goods in Small Quantities, or under US DOT 49CFR 173.4, Small Quantity Exceptions.

If your shipping department is able to comply with local and international rules for shipping small quantities of hazardous material, the cartridges can be returned properly labeled, in accordance with the Return Authorization.

The inner package, including the protective insert, has been tested to be in compliance with US DOT and IATA rules for shipping hazardous goods in small quantities (IATA) and hazardous goods in excepted quantities (US DOT).

## Packaging

1. The AFS Replacement Cartridge is shipped with an outer box that can be discarded. The insert and inner AFS Box should be used to return the spent filter cartridge as shown below.



Put the spent filter in the inner sleeve of the box after installing port plugs.



2. The inner package, including the protective insert has been tested to be in compliance with IATA and US DOT rules for shipping hazardous goods in small quantities. A piece of tape is provided to seal the top of the shipping box.
3. Personnel trained in hazardous shipping will be able to attach the enclosed labels to the box prior to shipment.



## Troubleshooting

| Condition                  | Possible Cause   | Recommendation   |
|----------------------------|--|--|
| Leak                       | O-rings between cartridge and manifold are not leak tight. | Remove and check the manifold O-rings for dirt or scratches. Inspect the sealing surfaces on the cartridge and manifold for scratches. Replace if necessary.   |
| Indicator changes quickly. | Leak in gas line.  | Find and fix the leak.   |
|                            | Contaminated Gas   | Verify that the source meets specifications as listed under "Limits" on page 5.<br><br>If the gas source is supplying other filters as well, check the condition of these filters. Otherwise check specification and procedures for verifying gas quality. |

## Support and Repair

If the AFS I Cartridge is still in the warranty period, please contact your dealer for support. If the warranty period has expired, please visit [www.ChromRes.com](http://www.ChromRes.com) for information about how to purchase a replacement or regenerated cartridge.



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### **Recycling**

Please contact CRS for information regarding recycling and reconditioning gas purifier products.

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