

## Charcoal Adsorber Canisters Nowata 7NC20 & 11NC22 Series

Activated Carbon Canisters for Natural Gas Filtration  
Replaceable Filters for Fluids and Gases

### 1. Introduction

Charcoal replacement canisters are the most convenient type of activated carbon adsorbers for systems with flow rates up to 57 gpm (using multiple canisters). The canisters make charcoal replacement much easier and cleaner than using loose charcoal beds. These canisters keep the operator from handling messy charcoal. The contaminated, spent charcoal is difficult to dispose of unless it is contained in a canister form.

Charcoal replacement canisters are designed for liquid flow from outside through the granulated charcoal into the center core. The treated fluid then exits out the sealed end of the center core. The hydrocarbon contaminants are removed through the adsorption process rather than mechanical filtration as in particulate filters.

#### Applications

Typical uses for oil and gas operations include:

- Amine and Glycol purification
- Hydrocarbon adsorption
- Wastewater treatment
- Boiler feed water treatment

#### Features

- Carbon steel perforated metal shell and core
- Buna rubber end seals bonded to shell
- Nowata 11NC22 canister holds approximately 31 lbs. of activated carbon
- Canisters fit Nowata C series filter housings and many competitor housings
- Canisters keep the operator from handling messy bulk charcoal
- Convenient lifting handle
- Maximum flow rate per canister is approximately 1.50 gpm
- Using multiple canisters can provide flow rates of up to 57 gpm



## 2. Construction Features for 11NC22 Charcoal Canister

### Canister Material

The 11" OD x 22" long, Nowata 11NC22 canister is made of tin plated carbon steel. The outer shell and 1.56" ID center core are perforated. End caps are solid, tin plated, carbon steel. The top end cap has a carbon steel wire bail handle to facilitate handling.

### Canister Liner

Granulated (lignite based) activated charcoal will create a fine dust during normal handling and shipping. To insure that the carbon remains in the canister, a cotton cloth liner in the shell and around the center core traps the charcoal fines. This center core cover is extremely important in keeping charcoal from migrating downstream during the filtration process.

### Seal Material

The 4 inch diameter Buna-N rubber flat seal is bonded to each canister end cap. This rubberized seal prevents bypass at the canister ends. The end seals are designed for a positive seal in both Nowata filter housings and competitive housings.

### Charcoal

The secret of our superior performance is based on our careful choice of charcoal. Our granulated (Lignite based) activated charcoal is made to optimize the contaminant holding capacity while maximizing structural strength, which minimizes the creation of fines during transportation. The 11NC22 canister's approximate 31 lbs. of charcoal per canister will absorb approximately 9 lbs. of contaminant before requiring replacement.

## 3. Canister Function

### Operation

The 11NC22 replacement canister is designed for liquid flow from outside through the granulated charcoal into the center core. The treated fluid then exits the sealed end of the center core. The hydrocarbon contaminants are removed through the adsorption process rather than mechanical filtration as in particulate filters. Low velocity or flow rate through the charcoal bed maximizes the removal efficiency. The 11NC22 charcoal canister is rated for a maximum of 1.50 gpm flow rate per canister. Lower flow rates per canister will allow for higher operating efficiency and longer canister life. The charcoal effectiveness is also based on the fluid operating temperature which should be held below 120 °F. Operation at temperatures greater than 220 °F is not recommended. A single charge of canisters will usually last between 8 to 10 weeks in a 400 gallon glycol system.

### Canister Replacement

All charcoal adsorbers should be protected immediately upstream by a particulate filter. When a properly sized particle filter is installed, the charcoal canister will not plug with solid contaminants and build back pressure which resists the fluid flow. The only way to determine when the canister needs replacing is to monitor the color of the filtered fluid. The fluid exiting the filter will be almost clear when the charcoal is absorbing the hydrocarbon contaminants. When the charcoal becomes saturated with contaminant, the exit fluid will begin to darken. When the operator observes the beginning of fluid discoloration, the charcoal canister should be replaced.

## 4. Dimensional Information

Canister Model Number	Canister Dimensions (inches)
7NC20 *	7" OD x 1-5/8" ID x 20" long
7NC22	7" OD x 1-5/8" ID x 22" long
11NC20	11" OD x 1-5/8" ID x 20" long
11NC22 *	11" OD x 1-5/8" ID x 22" long
11NC22A	11" OD x 2" ID x 22" long

\* Standard models

Filtration Group Process Inc.  
428 North Elm P.O. Box 678 Nowata, OK 74048 Phone +1 (918) 273-2204 Fax +1 (918) 273-2101  
support@filtrationgroup.com www.filtrationgroup.com  
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