



CDU-10k Destruct Device



Installation and Operation Manual

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Cautions, Warnings and Hazards Concerning Exposure To The Catalyst

NOTE: The catalyst is sealed inside of the CDU-10K unit. The catalyst will not be exposed to you if the container remains sealed and free of damage.

CATALYST EXPOSURE RISKS - ACCUTE EFFECTS

NOTE: This section **ONLY** applies if the CDU-10K container has been broken or opened up.

1. Eye Contact
 - May cause eye irritation.
2. Skin Contact
 - May cause skin irritation or dehydrating of skin.
3. Inhalation
 - May cause nose, throat and lung irritation.
4. Ingestion
 - Irritating to mouth, throat, and stomach.

Carulite-200 is used as ozone destruct catalyst

Carulite-200 SDS:

https://www.oxidationtech.com/downloads/ozone_destruct/Carulite-200_MSDS-24.pdf

EMERGENCY AND FIRST AID PROCEDURES FOR HAVING BEEN EXPOSED TO THE CATALYST

(If the CDU-10K container has been broken or has been opened up, the following list applies.)

1. Eyes:
 - Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek medical attention if irritation persists.
2. Skin
 - Flush contaminated areas with large amounts of water. Remove contaminated clothing. Wash clothing before reuse.
3. Inhalation
 - Remove person to fresh air. If breathing is difficult, administer oxygen. Seek medical attention.
4. Ingestion
 - Never give anything by mouth to an unconscious or convulsing person. If conscious, give large quantities of water. Do not induce vomiting. Seek medical attention. The material itself inside the CDU-10K Series Destruct Units is noncombustible but may accelerate the burning of combustible material.

Introduction and Application of the CDU-10K Destruct Models

These destruct devices are modular and capable of operating in wet (saturated) air streams or dry air streams. A heater band is required for wet air streams to ensure moisture does not condensate on the Catalyst media. Saturated air requires a water trap to remove moisture by air venting as off-gas from a water treatment system. If your destruct device does not have a heater band, only dry air streams should be used.

Wet Air is defined as humid air capable of condensation.

Saturated Air is defined as off-gas from an ozone water system, ozone gas was dissolved in water, the resulting off-gas is passing through the destruct system.

Dry Air is defined as air directly from an ozone generation process that has been dried to a -40 deg F dew-point and has no potential of condensation in any conditions.

Theory of Operation

Catalytic Method refers to a process in which a catalyst is used to accelerate a chemical reaction without being consumed, by providing an alternative reaction pathway with lower activation energy.

The CDU-10K series Ozone Destruct Units utilize a catalytic method to remove excess ozone. The catalyst is a transition metal consisting of manganese dioxide and copper oxide material. It is not consumed by the ozone and acts as a true catalyst. The CDU-10K series are designed to achieve a 99.96% reduction to ozone levels at peak rated flow (10,000 LPM). The CDU-10K units cannot move the air or gas through them on their own. The gas must be moved through the CDU-10K units by some other force.

These Ozone Destruct Devices are designed to have the ozone gas pass through the catalyst contained inside the destruct unit. This catalyst breaks down the ozone gas which can then be readmitted to the atmosphere.

Keep in mind that very high ozone levels at the inlet of the CDU-10K destruct system will result in some ozone at the exit. For example, ozone levels of 10,000 ppm at the inlet will cause a resulting ozone level of 4 ppm at peak flow conditions.

The catalytic ozone decomposition reactions are exothermic and will emit heat during the ozone destruction process. As a result, the stainless-steel shell of the destruct unit may become warm when operating at high ozone destruction capacity. Expect temperature up to 350 deg F at peak ozone levels of 10% or greater at peak flow-rate of 10,000 LPM. Operating at the max flow rate and max ozone flow will emit heat.

Installation

While handling the unit, you might experience some small fragments of the catalyst media coming out of the unit. This small amount of “dusting” is okay and expected. Remove the product caps which are sealing both ends of the unit.

The CDU-10K Destruct Unit must be mounted VERTICALLY from end to end, and never in a HORIZONTAL method. This ensures that the ozone gas being forced through the CDU-10K destruct unit will need to pass through all of the internal catalyst media. If the CDU-10K Destruct Unit were placed in a horizontal method, the ozone gas being admitted might just follow a path of less resistance and not be forced to flow through all of the contained catalyst media.

The outlet of the CDU-10K series can be left open to an indoor atmosphere or can be piped to an outside area, away from personnel. Be sure that the ozone flow rate does not exceed the max flow rate for the specific CDU-10K series unit. If the flow rate is too high, complete ozone destruction will not take place.

In the event that the catalyst inside the sealed CDU-10K series becomes wet, such as if any process water accidentally flows into the unit, the CDU-10K series unit must be replaced. Water damages the catalyst and the unit WILL NOT destroy ozone once wet.

Piping: Ozone resistant piping should be used to plumb ozone gas to the CDU-10k. Outlet piping must be a Metal piping rated for high temperatures for at least 10-feet of piping due to potential heat. After 10-feet CPVC or other piping may be used.

IMPORTANT: The CDU-10K destruct units are not considered weather proof nor water proof. They are designed to be operated indoors and to be placed in a non-condensing environment. If the unit is placed in a wet environment, the presence of moisture will shorten the life span of the enclosed catalyst media.

Heat: The CDU-10K destruct unit will create heat during the ozone destruction process. Greater amounts of ozone flow and or concentration will create more heat. Ensure proper piping is used at the outlet of the CDU-10K device (steel piping is best). Also, ensure mounting brackets are used to dissipate heat from materials that cannot tolerate temperatures above 350-deg F.

Heater Band Units

If the destruct device is intended for use with wet or saturated air the heater band will be required for operation.

The heater band should always have power. It should be powered by 120 VAC (or 220 VAC depending upon configuration) to ensure the destruct device is ready for use at all times.

Heater band will create some heat and make the unit warm to the touch. Overall heat should not be higher than 150 deg F.

Power Requirements for the Heater Band

300 watts

Water Trap Units

If the destruct device is intended for use in a saturated gas stream or from an ozone water system off-gas, then a water trap should be used to drain this captured water from the device.

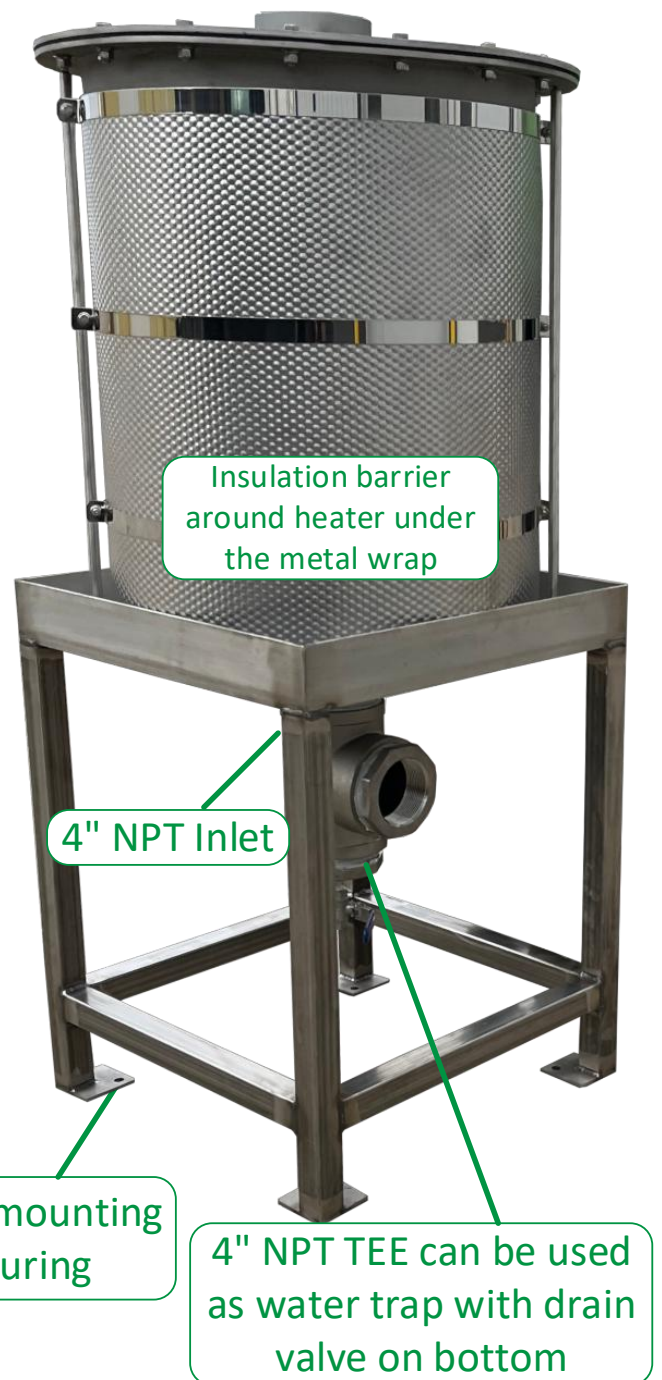
The CDU-10k may be equipped with a stainless-steel TEE fitting at the inlet (bottom) of the destruct unit. This can be used with either a manual or automatic valve, serving as both a water drain and water trap.

Outlined Image

CDU-10K



CDU-10K with Heater Option



Start-Up

Make sure the CDU-10K unit is securely plumbed before operating any Ozone Generator.

Maintenance

The destruct media may become fouled or contaminated over time, and will need replacement periodically depending upon usage and catalyst conditions. Replacement destruct media can be obtained from Oxidation Technologies.

To replace the destruct media:

Remove the cover from the top of the unit and completely empty the unit by sucking the media out with a vacuum, or by tipping the unit upside down.

Clean the inside if necessary. Any build-up due to moisture should be removed. If detergents or solvents are used, rinse the unit thoroughly with water and dry it completely before refilling.

Dump the new media into the unit. With a soft mallet or similar object, tap the side of the unit while filling it so that the media "settles" towards the bottom. Ensure that the gasket for the top cover is in good condition. Clean the mating surfaces and re-install the cover. Do not use sealants, if the gasket cannot be re-used. Replace the gasket immediately before supplying power to the CDU-10K.

Service Parts

Service parts listed below can be obtained directly from Oxidation Technologies. Please contact Oxidation Technologies directly for further information on other parts.

Part Number	Part Description
CDU-10k Heater Element	Replacement heater element strip
Carulite-200	Destruct Media – 250 lbs. required
CDU-10k Gasket	Replacement Viton Gasket

How to Contact Oxidation Technologies

By mail: Oxidation Technologies, LLC.
214 W Highway 18
Inwood, IA 51240

By Telephone: (515) 635-5854

Web site: www.oxidationtech.com

Email: Tech Information: info@oxidationtech.com
Sales Inquiries: sales@oxidationtech.com