Product Data Sheet

Updated March 2021: This manual replaces all previous versions

DX-8208A

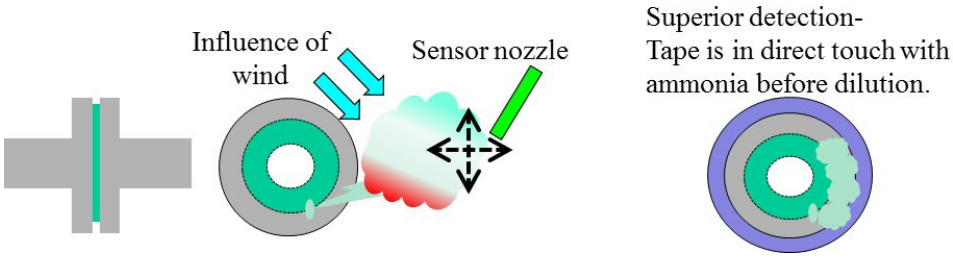
AMMONIA DETECTION TAPE

PRODUCT DESCRIPTION

Ammonia detection tape allows for the visual detection of ammonia gas leaks by changing color from white to blue/green when in contact with ammonia gas.

FEATURES

- Tape visually changes color, from white to dark blue/green, in as little as 10 seconds when exposed to NH_3 (depending on the flow rate, temperature, time and percentage of ammonia).
- Provides an additional safety net for detecting gas leaks and improves detection time by making it easier to find intermittent leaks.
- Is highly sensitive and can detect ammonia leaks that contain as little as 220ppm NH_3 concentration.
- DX-8208A will provide a long-lasting color-change once exposed to ammonia gas.
- Easy to use; applies the same as a typical silicone / polyester PSA.
- Can be used in most indoor or outdoor environments.
- Color change retention time is over 24hrs, typically over 3 days, depending on exposure condition.
- Superior capability in detecting the location of the NH_3 leak.
- Less influenced by wind, position, duration, skills, etc. compared to conventional ammonia detection products.
- Easy to check vertical and bottom faces of the adherend.



Portable/Stationary Sensor vs. DX-8208A Tape

PRODUCT CONSTRUCTION

POLYESTER FILM (1MIL)
SILICONE ADHESIVE WITH NH_3 DETECTION (2MIL)
POLYESTER FILM LINER (2MIL)

APPLICATION

- Ammonia detection tape can be easily applied to or wrapped around pipes, flanges, fittings, valves, access panels, etc. to immediately identify an ammonia leak location.
- The long-lasting color-change identifies the leak location even if the NH_3 line is shut off.
- Applications include and are not limited to ammonia refrigerators, ice rinks, fertilizer plants, power and chemical plants, transportation markets, ammonia producers, storage tanks, compressors, new energy markets and more.

RoHS Compliant.

For additional information or support, please visit our website at www.NittoDetectionTape.com or call toll free 800-755-8273

© Nitto, Inc. 2021

Product Data Sheet

Updated March 2021: This manual replaces all previous versions

PRODUCT PROPERTIES

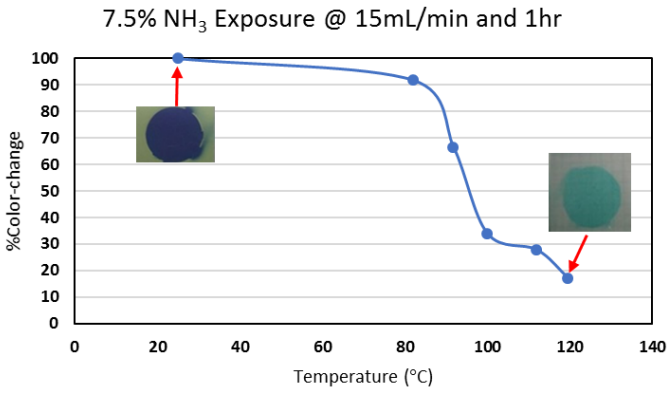
*CAUTION: The data described in this Product Data Sheet are typical values and should not be used in writing specifications. Customer is responsible to ensure product meets intended application requirements before approved for use.

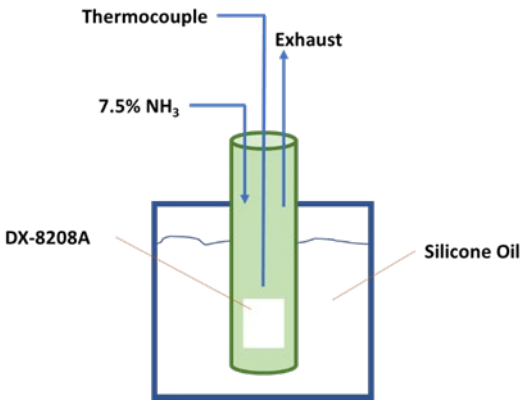
Color	White	
Dielectric Strength	6400 V (Voltage elevation speed 0.5V/sec)	
	Imperial	**Metric**
Total Tape Thickness Without Liner	3 mils	0.075 mm
Adhesion to Steel	33 ozf/in	9 N/ 25mm

Temperature vs. Reactivity with 7.5% Anhydrous Ammonia

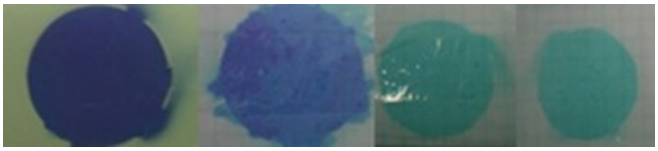
- Tape was exposed to 7.5% anhydrous ammonia gas at room temperature 80°C, 90°C, 100°C and 120°C to confirm color-change reaction.
- Result: Acceptable color-change was observed for temperatures up to 120°C.

∗ Reactivity with NH_3, at higher flow rate, and/or higher concentration will result in faster color-change





7.5% NH_3 gas exposure set-up



100% ~75% ~30% ~20%

Color-change reference guide

RoHS Compliant.

For additional information or support, please visit our website at www.NittoDetectionTape.com or call toll free 800-755-8273

© Nitto, Inc. 2021

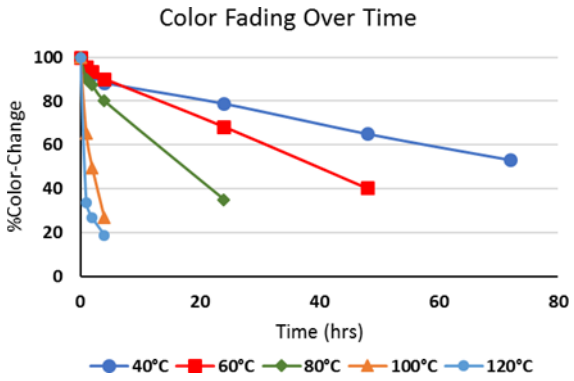
Product Data Sheet

Updated March 2021: This manual replaces all previous versions

Color Fading Over Time After Gas Stoppage

Color tends to fade over time when exposure to NH_3 is stopped but it does not go back to its original white color in most conditions.

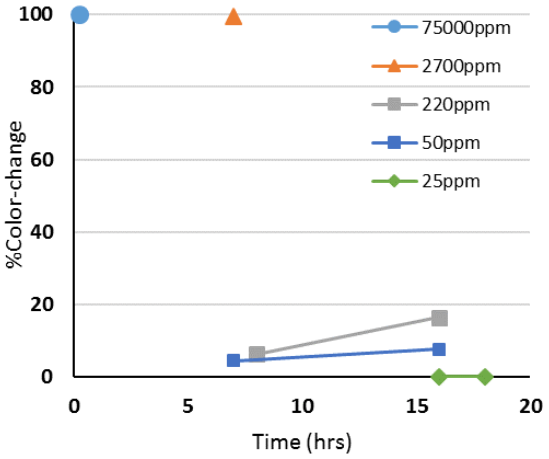
- Color fading was measured over time at 40°C, 60°C, 80°C, 100°C and 120°C.
- The color fades faster at higher temperatures. For example, at 120°C the tape lost ~80% of its original color after 4hrs and at 40°C, the tape lost ~50% of its original color after 72hrs.
- When leak is continuous, color fading will not occur.



Color-Change Speed vs. NH_3 Gas Concentration

Color-change with concentrated (~100%) NH_3 occurs in less than 5 minutes. Color-change depends on NH_3 concentration, flow rate and temperature.

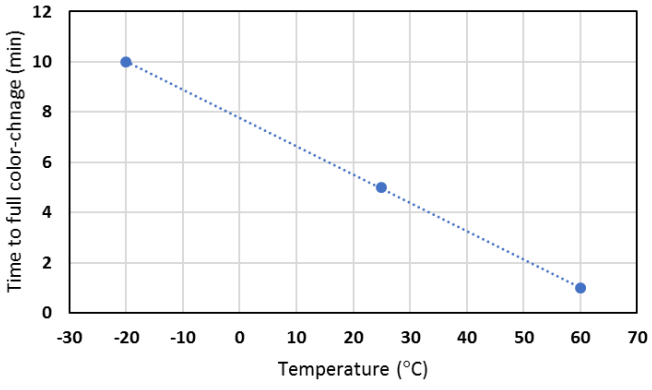
- With 75000ppm NH_3 in air, full color-change at less than 15 minutes at room temperature and 110mL/min flow rate.
- Clear color-change was observed with 220ppm and 2700ppm NH_3 in air at room temperature and 110mL/min flow rate.
- With 50 ppm and 25ppm NH_3 in air, no obvious color-change can be observed after 16hrs of exposure.



Temperature vs. Reactivity with 30% Aqueous Ammonia Gas

- Tape was exposed to ammonia gas generated from 30% aqueous ammonia solution at -20°C, room temperature, and 60°C to confirm color-change reaction.
- Result: Color-change to purple was observed in 10min at -20°C, in 5min at room temperature and in less than minute at 60°C.

* Tape soaked in 30% aqueous ammonia provided an immediate full color-change. CAUTION: If tape is soaked in 30% aqueous ammonia for a long time, it may become fragile.



RoHS Compliant.

For additional information or support, please visit our website at www.NittoDetectionTape.com or call toll free 800-755-8273

© Nitto, Inc. 2021

Environmental Durability

Condition	Duration	Color-Change after Aging	After Aging, NH_3 Exposure
High Temp.	60℃ x 6 months	No Color-Change	Reacted, Blue
Low Temp.	- 5℃ x 6 months	No Color-Change	Reacted, Blue
High Humidity	40℃ x 95% RH x 6 months	No Color-Change	Reacted, Blue
Weather Resistance	Outdoor Exposure 6 months Under Florida Sunshine	No Color-Change	Reacted, Blue
Water Immersion	Total Water Immersion (Room Temp.) x 3 months	No Color-Change	Reacted, Blue

※ Tapes applied on SUS316 pipe were aged at various conditions and confirmed for color-change with NH_3 at room temperature.

GENERAL STORAGE CONDITIONS

Store in 50-80°F (10-27°C), 25-50% relative humidity; out of direct sunlight.

PRECAUTION REMINDER

Surface should be clean, free of oil, moisture and dirt before applying. For substrate cleaning, isopropyl alcohol cleaner may be used but the surface must be completely dry before tape application. Pressure-sensitive adhesive tapes may require pressure by roller, hand or press when applying. Not doing so may affect the general properties and appearance. Please inspect your surface prior to application; this tape may not adhere well to extremely uneven or distorted surfaces. Please remember to allow adequate time for full adhesive strength.

WARNINGS

This product is intended for use as a localized ammonia gas indicator and should be used as part of a comprehensive gas detection system. DX-8208A will not prevent NH_3 leaks. Customers should not rely solely on this product to monitor the safety of a facility where flammable or hazardous gases are present. Please do not use this tape for detecting other gases. Not all gases and gas mixtures have been tested.

Please visit www.NittoDetectionTape.com or call 1-800-755-8273 for a free copy of the warranty terms. Notices in other languages also available on website.

RoHS Compliant.

RoHS

For additional information or support, please visit our website at www.NittoDetectionTape.com or call toll free 800-755-8273

© Nitto, Inc. 2021