

# ***Technical Note***

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## ***Chemcassette® Handling, Storage and Use***

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### **Chemcassette Handling, Storage and Use**

Chemcassette is a colorimetric-based sensor paper used by Honeywell Analytics gas monitoring systems to detect and measure toxic gases. It consists of a special substrate that has been coated with proprietary chemical formulations that produce a color reaction in dry form when exposed to a specific gas or family of gases. Chemcassettes are extremely sensitive and specific to the gas or gases they are designed to detect. As a result, they are a fast, accurate, virtually interference-free detection method.

Each step of the Chemcassettes production process is carefully controlled to assure that the Chemcassettes will perform as intended in Honeywell Analytics monitoring systems. Each and every Chemcassette batch is dynamically tested according to NIOSH methodologies with a gas it is designed to detect, and the results are carefully documented. ISO 9001 quality control standards are strict enough to meet rigorous U.S. Nuclear Regulatory Commission audit requirements. Each step in the manufacturing and testing process is fully documented and traceable to a National Institute of Standards and Technology (NIST) standard through the serial number assigned to each Chemcassettes®.

The following simple guidelines for handling, shipping, and storage of Honeywell Analytics Chemcassettes are recommended to ensure optimum performance of your Honeywell Analytics Chemcassette based monitor. By following these guidelines, you can be assured of the fast, sensitive response and low maintenance for which the Chemcassette system is well known.

### **Handling**

Honeywell Analytics Chemcassettes are non-toxic and require no special precautions to protect workers. There is no need for special transportation or disposal procedures, except in the case of recommended refrigeration requirements. The Chemcassettes are excluded from reporting requirements under the terms of the OSHA Hazard Communication Standard since it is designed for a particular end-use function and will not release, or otherwise result in exposure to hazardous chemicals under normal use. Therefore, Safety Data Sheets (SDS) are not required. Since oils and acids present in your skin may react with the reagents in the tape and cause it to change color, we recommend that gloves be worn when handling. As a precaution, keep hands away from your eyes and mouth and wash your hands after handling.

### **Shipping and Storage**

Chemcassettes are shipped in their protective packaging (sealed in a lightproof plastic bag and may be inserted into a cardboard box) and should remain so until ready for use. This protects them from any unnecessary exposure to light, air, or moisture. Most Honeywell Analytics Chemcassettes will maintain optimum sensitivity even when stored at room temperature (< 25 °C, 77 °F).

## Technical Note

### Honeywell® Chemcassette Part Number and Storage Condition Guideline - Active Units

Instrument		CM4			Vertex Line				SPM-Flex			Tape Color	Storage Temperature
Chemcassette Family		CM4	XPC	XP4-C	Vertex	XPV	XP4-V	XP6-V	CC-S	CC	XP		
Days of Operation		30	90	120	30	90	120	180	14	30	90		
NH3	Ammonia											White / Blue	< 0 °C (32 °F)
	Aliphatic Amines / Ammonia	874342			1295-0221							Yellow Green	< 0 °C (32 °F)
	XP Amines / Ammonia		1874-9309			1295-0405			1265-4003		1265-3003	Light Yellow	< 0 °C (32 °F)
	XP4 Amines / Ammonia			1258-9309			1257-9309					Light Yellow	< 0 °C (32 °F)
	XP6 Amines / Ammonia							1507-9309					
Br2	Bromine											Tan	< 25 °C (77 °F)
Cl2	Chlorine / Chlorine Dioxide											Tan	< 25 °C (77 °F)
	Chlorine / Oxidizers	874007										Tan	4 < 25 °C (40 < 77 °F)
	XP Chlorine		1874-9308			1295-0227			1265-4002		1265-3002	White	< 25 °C (77 °F)
	XP4 Chlorine			1258-9308			1257-9308					White	< 25 °C (77 °F)
	XP Chlorine-II					1295-0560						White	< 25 °C (77 °F)
	XP Chlorine-3					1295-0565						White	< 25 °C (77 °F)
R(NCO)2	Diisocyanates								1265-4006	1265-3006		Yellow	< 0 °C (32 °F)
F2	Fluorine / Oxidizers	1874-9306			1295-0220				1265-4004	1265-3004		White	< 25 °C (77 °F)
N2H4	Hydrazines	874347							1265-4008	1265-3008		Yellow Green	< 25 °C (77 °F)
GeH4	XP Germane					1295-0564						White	4 < 10 °C (40 < 50 °F)
HYD	Hydrides	874300			1295-0300							White	< 25 °C (77 °F)
	XP Hydrides		1874-9300			1295-0226			1265-4000		1265-3000	White	4 < 10 °C (40 < 50 °F)
	XP4 Hydrides			1258-9300			1257-9300					White	4 < 10 °C (40 < 50 °F)
	XP6 Hydrides							1507-9300					White
HCN	Hydrogen Cyanide	874510			1295-0222				1265-4009			White / Blue	< 0 °C (32 °F)
H2O2	Hydrogen Peroxide								1265-4010	1265-3010		White / Tan	< 0 °C (32 °F)
H2S	Hydrogen Sulfide	874304										White	< 25 °C (77 °F)
MA	Mineral Acids	874337			1295-0225							Yellow	< 0 °C (32 °F)
	XP Mineral Acids		1874-9310			1295-0507			1265-4001		1265-3001	Light Yellow	< 0 °C (32 °F)
	XP Mineral Acids-U*								1265-4012		1265-3012	Light Yellow	< 0 °C (32 °F)
	XP4 Mineral Acids			1258-9310			1257-9310					Light Yellow	< 0 °C (32 °F)
NO2	Nitrogen Dioxide											Tan	< 25 °C (77 °F)
O3	Ozone								1265-4011	1265-3011		White	< 0 °C (32 °F)
PPD	PPD / Aromatic Amine											White	< 25 °C (77 °F)
COCl2	Phosgene	874307	1874-0312**									Yellow	< 25 °C (77 °F)
	XP Phosgene		1874-9307			1295-0228			1265-4007		1265-3007	Yellow	< 25 °C (77 °F)
	XP4 Phosgene			1258-9307			1257-9307					Yellow	< 25 °C (77 °F)
SO2	Sulfur Dioxide											Tan	< 0 °C (32 °F)
	Sulfur Dioxide (Low)	874568			1295-0552				1265-4005	1265-3005		Tan	< 0 °C (32 °F)

\* Export Unrestricted

\*\* 60 day tape

### Honeywell® Chemcassette Part Number and Storage Condition Guideline - Legacy Units

## Technical Note

Instrument (Legacy)		TLD		SPM			7100 / System 16			Tape Color	Storage Temperature
Chemcassette Family		SP	XPT	SP	EP	XPS	SP	LP	XPL***		
Days of Operation		14	14	14	30	90	7 or 14***	30	90		
NH3	Ammonia	706002		706002			706002			White / Blue	< 0 °C (32 °F)
	Aliphatic Amines / Ammonia	706042		706042	700342		706042	711342		Yellow Green	< 0 °C (32 °F)
	XP Amines / Ammonia					1740-9309			1830-9309***	Light Yellow	< 0 °C (32 °F)
	XP4 Amines / Ammonia									Light Yellow	< 0 °C (32 °F)
Br2	Bromine	711314		711314	700313		711314			Tan	< 25 °C (77 °F)
Cl2	Chlorine / Chlorine Dioxide	704006		704006	700302		704006	711302		Tan	< 25 °C (77 °F)
	Chlorine / Oxidizers	704007		704007			704007			Tan	4 < 25 °C (40 < 77 °F)
	XP Chlorine		1750-9308			1740-9308			1830-9308***	White	< 25 °C (77 °F)
	XP4 Chlorine									White	< 25 °C (77 °F)
R(NCO) <sub>2</sub>	Diisocyanates	700506		700506	700309		700506	711309		Yellow	< 0 °C (32 °F)
F2	Fluorine / Oxidizers	1750-9306		1750-9306	1740-9306		1750-9306	1830-9306		White	< 25 °C (77 °F)
N2H4	Hydrazines	708013		708013	700347		708013			Yellow Green	< 25 °C (77 °F)
HYD	Hydrides	705502		705502	700300		705502	711300		White	< 25 °C (77 °F)
	XP Hydrides		1750-9300			1740-9300			1830-9300***	White	4 < 10 °C (40 < 50 °F)
	XP4 Hydrides									White	4 < 10 °C (40 < 50 °F)
HCN	Hydrogen Cyanide	704510		704510			704510			White / Blue	< 0 °C (32 °F)
H2O2	Hydrogen Peroxide	700278		700278	700509		700278			White/Tan	< 0 °C (32 °F)
H2S	Hydrogen Sulfide	701012		701012	700304		701012	711304		White	< 25 °C (77 °F)
	Mineral Acids	705505		705505	700337		705505	711337		Yellow	< 0 °C (32 °F)
MA	XP Mineral Acids		1750-9310			1740-9310				Light Yellow	< 0 °C (32 °F)
	XP Mineral Acids-U*									Light Yellow	< 0 °C (32 °F)
	XP4 Mineral Acids									Light Yellow	< 0 °C (32 °F)
NO2	Nitrogen Dioxide	703012		703012	700305		703012	711305		Tan	< 25 °C (77 °F)
O3	Ozone	704514		704514			704514			White	< 0 °C (32 °F)
PPD	PPD / Aromatic Amine	709528		709528	700343		709528			White	< 25 °C (77 °F)
COCl2	Phosgene	702020		702020	700307		702020	711307		Yellow	< 25 °C (77 °F)
	XP Phosgene					1740-9310				Yellow	< 25 °C (77 °F)
	XP4 Phosgene									Yellow	< 25 °C (77 °F)
SO2	Sulfur Dioxide	705015		705015			705015			Tan	< 0 °C (32 °F)
	Sulfur Dioxide (Low)	705027		705027	700350		705027			Tan	< 0 °C (32 °F)

\* Export Unrestricted  
 \*\*\* For System16 Only

## Technical Note

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Chemcassette storage temperatures depend on chemical type and can be stored in freezers, refrigerators and at room temperature. In most cases, it is acceptable to go to colder storage spaces.

The following chemical tapes must be stored in **freezer** (< 0 °C, < 32 °F):

- Ammonia
- Aliphatic amines/ammonia
- Chlorine III/oxidizers
- Diisocyanates
- Hydrogen cyanide & hydrogen peroxide
- Minerals acids
- Ozone
- Sulfur dioxide

The following chemical tapes are recommended to be stored in **refrigerator** (see range):

- Chlorine/oxidizers (4 °C < 25 °C, 40 °F < 77 °F)
- Phosgene (All) (< 25 °C, < 77 °F)
- Hydrides (XP & XP4 only) (4 °C < 10 °C, 40 °F < 50 °F) Acceptable to use colder storage

The remainder of chemicals can be stored at **room temperature** (< 25 °C, < 77 °F):

- Bromine
- Chlorine/chlorine dioxide
- Fluorine / Oxidizers
- Hydrazine
- Hydrides (SP, EP and LP only)
- Hydrogen Sulfide
- Nitrogen Dioxide
- PPD / Aromatic Amine

Since the temperature of storage rooms can vary, it is recommended that most Chemcassettes and XP/XP4 Chemcassettes be stored in a freezer, expect some exceptions. After removing a Chemcassettes from the freezer, allow it to adjust to ambient conditions before use. Phosgene may experience slight color change between storage temperature changes, but this is normal.

If a freezer or refrigerator are not available to store Chemcassettes, follow the temperature storage information on the label of each Chemcassettes. Chemcassettes that require freezer storage must be placed in a freezer upon arrival. Shipping time (when the Chemcassettes is not refrigerated) is factored into the expiration date.

### **Inspection**

## ***Technical Note***

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Chemcassettes® are carefully inspected and tested for performance before shipment. The expiration date represents the date after which the Chemcassettes® should no longer be used. You will usually have **3 months for standard** and **1 year for XP/XP4** to use the Chemcassettes® once it is received. Once outdated, the Chemcassettes® should be discarded.

Upon opening the packaging, the tape may also be examined for discoloration. Some discoloration of the tape around the edges is not unusual and does not affect performance of the monitoring system. If the surface of the tape has discolored, the tape should be discarded or returned to Honeywell Analytics for replacement.

### **Expiration**

Regardless of expiration date, if you are not monitoring continuously, an SP (Standard Play) size Chemcassettes should be replaced **14 days** after the package is opened.

Most EP (Extended Play), LP (Long Play), Vertex, CM4 or SPM Flex Chemcassettes® should be discarded after **35 days** from the date opened.

Note: Chemcassettes® exceptions for CM4 and Vertex should be replaced **14 days** after the package is opened.

- Hydrogen cyanide
- Chlorine
- Nitrogen Dioxide
- Ozone
- Sulfur Dioxide

XP Chemcassettes (XPV, XPC, XPL, XPS, XPE, XPT and SPM Flex CC XP) should be discarded after **90 days** from the date opened.

XP4 Chemcassettes® (XP4-C and XP4-V) should be discarded after **120 days** from the date opened.

It is best to leave the Chemcassettes in its protective packaging until it is used.

### **Operating Time**

## Technical Note

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Under normal running conditions, with *no* target gas present, the Chemcassettes® will run continuously (24 hr/day) in most instruments.

- 7-day continuous operation
  - 7100: SP Chemcassettes
- 14-day continuous operation
  - SPM Flex: SPM Flex CC-S and CC-S XP Chemcassettes
  - Vertex/Vertex Edge: Hydrogen Cyanide Chemcassettes *only*
  - CM4: Hydrogen Cyanide & Nitrogen Dioxide Chemcassettes *only*
  - SPM: SP Chemcassettes
  - TLD: SP Chemcassettes
  - TLD: XPT Chemcassettes
- 30-day continuous operation
  - SPM Flex: SPM Flex CC Chemcassettes
  - Vertex/Vertex Edge: Chemcassettes
  - CM4: Chemcassettes
  - SPM: EP Chemcassettes
  - System 16: LP Chemcassettes
  - 7100: LP Chemcassettes
- 90-day continuous operation
  - SPM Flex: SPM Flex CC XP Chemcassettes
  - Vertex/Vertex Edge: XPV Chemcassettes
  - CM4: XPC Chemcassettes
  - SPM: XPS Chemcassettes
  - System 16: XPL Chemcassettes
- 120-day continuous operation
  - Vertex/Vertex Edge: XP4-V Chemcassettes
  - CM4: XP4-C Chemcassettes
- 180-day continuous operation
  - Vertex Edge: XP6-V Chemcassettes

If you have any questions on the storage, handling, or performance of your Chemcassettes®, please contact your Honeywell Analytics Representative.

## Technical Note

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Find out more

[www.honeywellanalytics.com](http://www.honeywellanalytics.com)

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