

**DESCRIPTION**

The P8200 Radiation Indicators are Type 1 process chemical indicators, and exhibit an obvious, visual color change from yellow to red when exposed to radiation. Radiation Indicators quickly allow the user to visually determine whether or not the Indicator has been irradiated. The product can also be useful in a variety of research applications.

Radiation Indicators are not dosimeters, and do not provide a quantitative measurement of absorbed dose. They are not recommended to be used as the sole verification method to assess product conformity to specification.

This product meets AAMI ST60, ISO 11140 and ISO/ASTM 51539 guidance document standards.

**APPLICATION(S)**

The Radiation Indicator is designed for the qualitative assessment of radiation exposure for use in Gamma, Electron Beam, and X-ray radiation process applications. Radiation Indicators are a convenient way to:

- Visually distinguish between irradiated and non-irradiated products within a radiation processing facility
- Monitor multi-pass and multiple-sided processes
- Maintain inventory and quality control

**SPECIFICATIONS**
**Physical Specifications:**

GEX Part No.	Product Name and Description	Indicator Dimensions	Packaging Dimensions	Packaged Weight
P8201	Radiation Indicator Dots 1,000 per roll (no core; dispenser box)	13mm diameter	3.25" x 3.25" x 0.75" (White dispenser box)	0.10 lbs.
P8202	Radiation Indicator Dots 5,000 per roll (2" cardboard core)	13mm diameter	6.0" x 6.0" x 1.0" (White box)	0.46 lbs.
P8203 (by special order)	Radiation Indicator Paper Roll (2" cardboard core)	50m x 48mm roll	8.0" x 8.0" x 2.0" (black anti-static pouch)	1.60 lbs.
P8204	Radiation Indicator Dots 5,000 per roll (2" cardboard core)	10mm diameter (dual row)	4.375" x 4.375" x 1.5" (White box)	0.32lb.

**Materials:**

Substrate:	~70 µm paper
Adhesive:	Ucecryl PC 91 (Acrylic-based emulsion)
Release Liner:	~70 µm Silicone Release Liner
Indicator Ink:	PVB based coating

**Storage:**

Un-irradiated Radiation Indicators should be stored at room temperature (15-25°C) in a dark container and protected from intense UV light. Moderate heat (up to 30°C) will not adversely affect the response of the Indicators. However, extreme temperature and relative humidity environmental conditions may adversely affect the function of the Indicator.

**Stability:**

The color has been shown to remain stable for 18 months. However, the user should verify the stability under their conditions of irradiation and storage because this is not a specification.

**Shelf Life:**

15 months from the date of manufacture. Radiation Indicator products are supplied with a Lot Number and a "Use By" date. Users are encouraged to use the indicators on or before the "Use By" date.

**Environmental Influences:**

Radiation Indicators are sensitive to any form of radiation, including sunlight. Avoid exposure to direct sunlight or intense UV lighting for more than 10 minutes. Extreme temperature and relative humidity environmental conditions may adversely affect the functionality and/or stability of the Radiation Indicator (see Storage). Product packaging and environmental outgassing have been shown to affect indicator performance. Customers are therefore encouraged to test the indicators under their conditions of use to ensure the indicators will meet their requirements. For further information about usage, reference ISO/ASTM 51539.

**USAGE**






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**How to Use:**

P8200 Series Radiation Indicators are thin, flexible and have adhesive properties allowing them to be attached to most surfaces. For further information about usage, reference ISO/ASTM 51539.

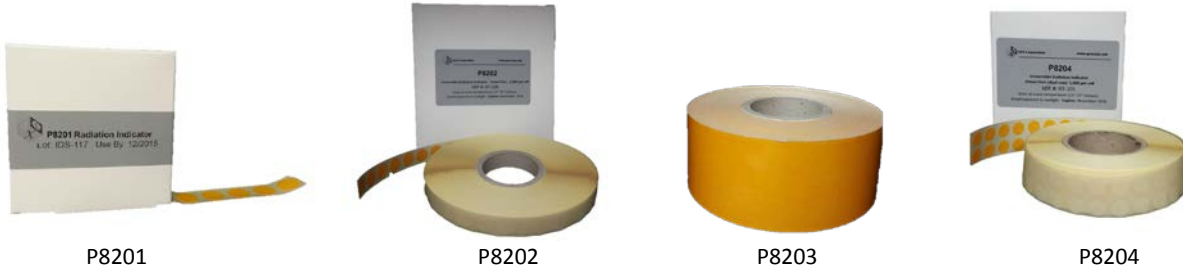
Un-irradiated Indicators are a bright, yellow color as shown in the image below at 0 kGy. When irradiated, the Indicators undergo a chemical alteration and reliably activate and change color at 10 kGy. The Indicators continue to change color and progressively develops to darker shades of red at radiation doses of 10 kGy and above.

The image below provides an approximate description of the expected color changes, per dose in kGy. *(Please note: It is very difficult to replicate the actual color change in a document – actual color may vary slightly from the chart below.)*

Dose (kGy)	Response
0	
10	
15	
20	
25	

## PRODUCT PHOTOS

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## LIMITATIONS/PRECAUTIONS

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### Limitations:

- Radiation Indicators should be used for inventory and control purposes only and should never be used as a substitute for dosimetry.
- Radiation Indicators may not adhere well to certain polymers such as polypropylene and certain rough cardboards. Application on any surface should be tested by the user.
- Infrequent false positive or false negative results may occur. Generally any small failure of a few dots cannot be investigated for cause due to the sample size. However, all failures should be reported to GEX for tracking and trending purposes.

### Precautions:

Avoid exposure to direct sunlight or intense UV light for more than 10 minutes.

## HEALTH/ENVIRONMENTAL INFORMATION

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P8200 series Radiation Indicators are manufactured using non-reactive materials - a polyvinyl butyral coating with an ethanol-based dye. They are non-toxic and can be safely discarded in general waste receptacles. A Material Safety Data Sheet (MSDS) is not required, per CFR 1910.1200.

## WARRANTY/GUARANTEES

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### Guarantee

1 year GEX satisfaction guarantee. May be returned with or without reason within one year from the date of delivery.

## REFERENCES

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For information about Radiation Indicators, reference the following documents:

- ISO/ASTM 51539
- AAMI ST60
- ISO 11140

To learn more about GEX products and services, visit [www.gexcorp.com](http://www.gexcorp.com) or contact a GEX representative at +1 303 400-9640.