

# **CANON INK JET PRINTER EVALUATION OF CHINESE IMITATION INK CARTRIDGE SUMMARY REPORT**

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Release Date: [2007/10/04](#)

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**Canon Ink Jet Printer Chinese Imitation Ink Evaluation  
Summary Report**

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## 1. Introduction

In June 2007, We, Allion conducted benchmark tests between genuine ink jet printer refill ink and third party refill ink.

This report summarizes the benchmark tests of genuine ink and Chinese imitation ink for ink jet printers.

Currently in the Chinese market, imitation ink cartridges are sold at a much cheaper price than the genuine ink. Imitation ink uses trademarks illegally and therefore its external appearance is very similar to that of the genuine ink. Consequently, without special tools or expertise, it is difficult for the general users to distinguish between the imitation ink and the genuine ink. Furthermore, because the imitation ink is cheaper and as long as there is no clear difference in appearance, there is a high probability that the consumers will purchase the cheaper imitation ink cartridge. In fact, a consumer who bought the imitation ink by trusting the manufacturer's logo will not be able to enjoy the quality and performance which genuine product can provide and will judge the printer's quality based on incorrect understanding of the product or may unintentionally break the printer.

Printer manufacturers, together with the Public Security Bureau are actively tightening control over imitation products which are violating trademarks, however eradication seems difficult. As a result, the printer manufacturers are publishing on their websites in certain regions information such as how to distinguish between imitation ink cartridge's external appearance, what kind of harm will be done when using imitation ink, what kind of issues and printing results can be seen and at the same time strongly encouraging the general public to use genuine ink cartridge.

We have actually decided to conduct comparison tests by evaluating the quality and performance of the imitation ink cartridge and its cost performance compared to the genuine ink cartridge by using the Chinese imitation ink cartridge actually being sold in the Chinese market. Printing quality comparison tests were conducted by repeatedly printing photo images and documents.

## 2. Conclusion

As a result of the printing quality comparison tests, imitation ink cartridge not only proved low reliability of its print quality such as poor color quality, ink exudation, smear of the printed document, but it also showed that it could not print the number of pages that it says it is capable of printing. Consequently, the cost per page increases and can lead to a loss of value for money.

However, imitation ink cartridges have several characteristics and if the user has this information, it is possible to avoid the harm that can arise by using the imitation ink cartridge.

By publishing this report, we hope that the issues of illegal imitation products will become clear and that it raises the awareness of the general consumers when purchasing these items.

## 3. Test Results

### 3.1 Comparison of Print Quality

<Document Printing>

Under the below printing conditions, comparison tests were conducted by printing the same document data using genuine ink and imitation ink.

#### A. Difference in Color

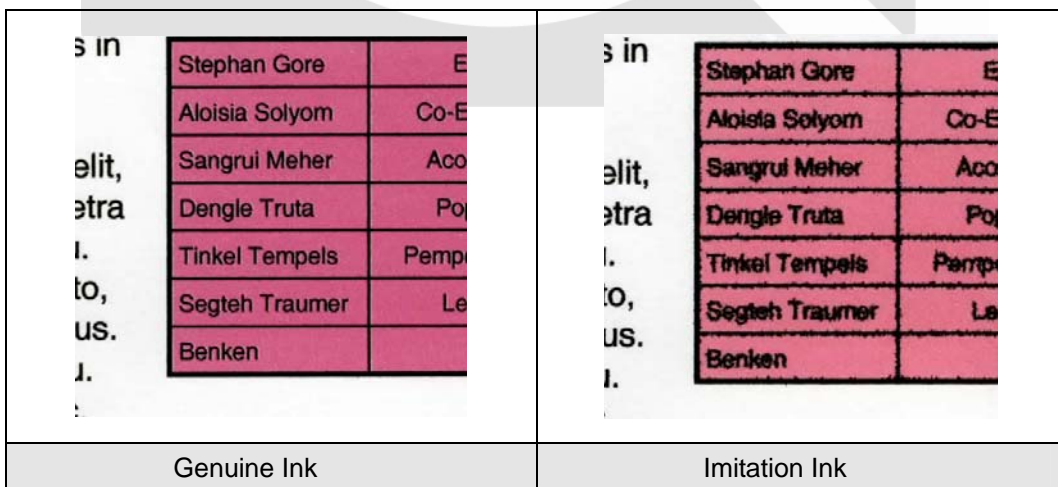
Printing example of an extremely poor color quality (yellow became green). This is most probably the result of ink mix within the ink tank.



<Printing Conditions> \* Printer used: PIXMA iP2580, Driver Version: Ver. 1.80 (Driver for PIXUS iP2500) \* Paper used: Canon SW-101 A4 \* Data used: ISO/IEC 24712 Data \* Print Settings: Paper setting/Normal Paper, Print Quality/Normal, Color/Density: Automatic

#### B. Exudation of Black Ink

When printing charts and graphs, black ink was exuding on the edge and in the letters.

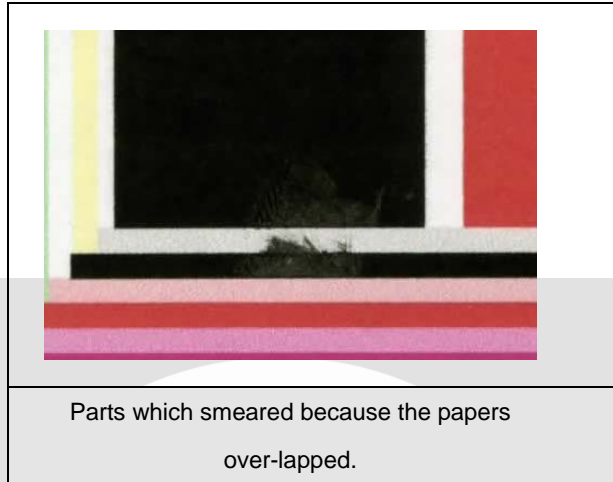


<Printing Conditions> \* Printer used: PIXMA iP2580, Driver Version: Ver. 1.80 (Driver for PIXUS iP2500) \* Paper used: Canon SW-101 A4 \* Data used: ISO/IEC 24712 Data \* Print Settings: Paper setting/Normal Paper, Print Quality/Normal, Color/Density:

Automatic

### C. Print Smear

It takes longer for the ink to dry when printing with imitation ink and therefore when the second page covers over the first page before the ink dries, the prints smear.

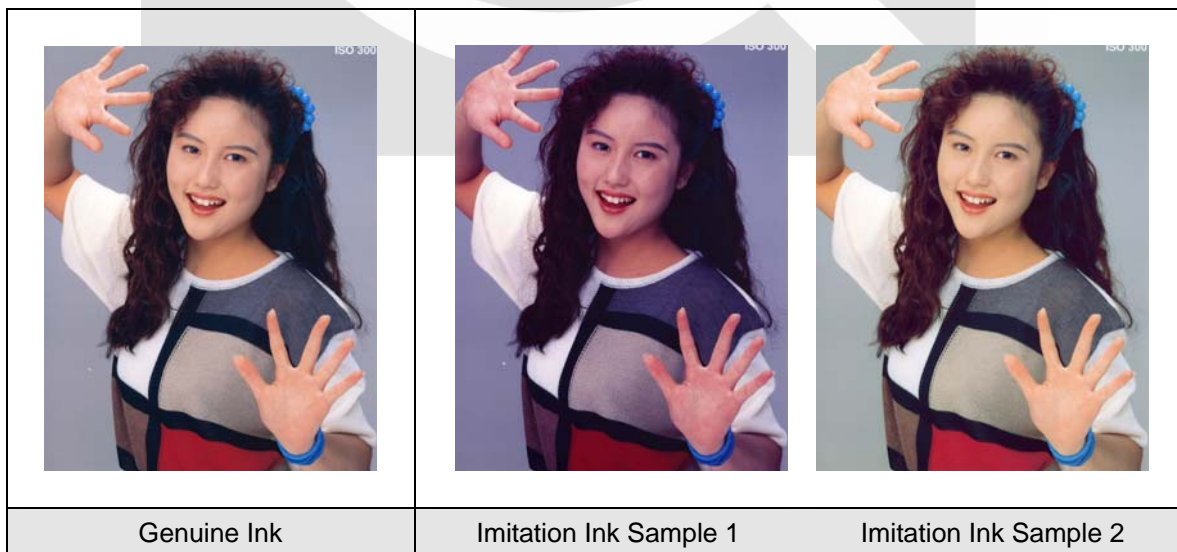


<Printing Conditions> \* Printer used: PIXMA iP2580, Driver Version: Ver. 1.80 (Driver for PIXUS iP2500) \* Paper used: Canon SW-101 A4 \* Data used: ISO/IEC 24712 Data \* Print Settings: Paper setting/Normal Paper, Print Quality/Normal, Color/Density: Automatic

### <Photo Image Printing>

Under the below printing conditions, comparison tests were conducted by printing the same photo image using genuine ink and imitation ink.

When printing with the imitation ink, in comparison to the original photo image data, it printed with a red tinge or it was printed with pale colors.



<Printing Conditions> \* Printer used: PIXMA iP2580, Driver Version: Ver. 1.80 (Driver for PIXUS iP2500) \* Paper used: Canon SW-101 A4 \*Image Used: SCID Image N1A.tif. When printing it, N1A.tif was converted to RGB data. \* Print Settings: Paper



setting/Super Photo Paper, Print Quality/Normal, Color/Density: Automatic \*Full page printing, no frame: overflow/maximum3.2

### Comparison of Printable Number of Pages and Cost Performance

<Comparison of Printable Number of Pages>

There are imitation ink cartridges that clearly cannot print as many pages as the genuine ink cartridges.

Therefore, although imitation ink cartridges are cheaper than the genuine products, the running cost can become higher.

#### A. Black Ink

	Genuine Ink Cartridge	Imitation Ink Cartridge
Printable Number of Pages	<p><b>360 Pages</b></p> <p>* Minimum printable number of pages per cartridge when using 6 ink cartridges            * Above number of pages were printed by all 6 ink cartridges</p>	<p><b>185 Pages</b></p> <p>* Printed number of pages from the ink cartridge that printed the least number of pages out of 6 ink cartridges            * There were <b>3 out of 6</b> ink cartridges that could only print extremely low number of pages such as above.</p>
Cost per page	<p><b>0.3 Yuan</b></p> <p>* Purchase price of the black ink cartridge: 120 Yuan            * Ink Cost = 120 Yuan ÷ 360 pages</p>	<p><b>0.5 Yuan</b></p> <p>* Purchase price of the black ink cartridge: 90 Yuan            * Ink Cost = 90 Yuan ÷ 185 pages</p>

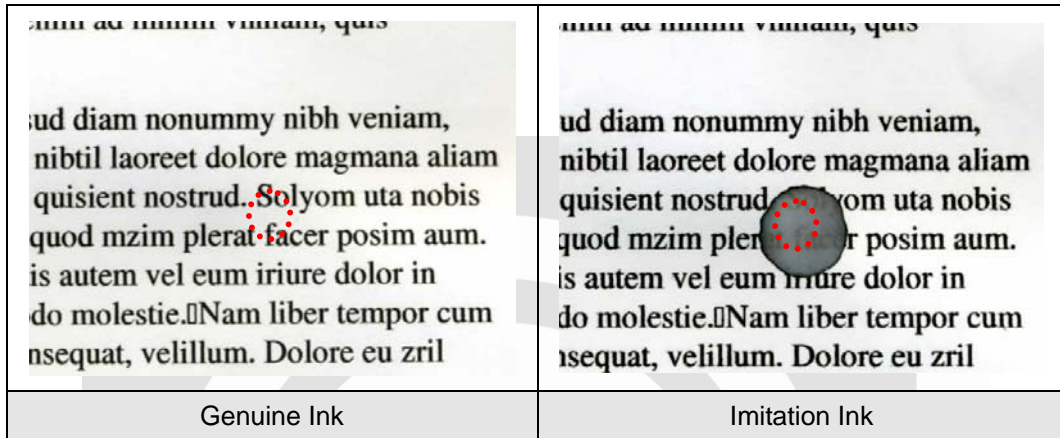
#### B. Color Ink

	Genuine Ink Cartridge	Imitation Ink Cartridge
Printable Number of Pages	<p><b>323 Pages</b></p> <p>* Minimum printable number of pages per cartridge when using 6 ink cartridges            * Above number of pages were printed by all 6 ink cartridges</p>	<p><b>138 Pages</b></p> <p>* Printed number of pages from the ink cartridge that printed the least number of pages out of 6 ink cartridges            * There were <b>3 out of 6</b> ink cartridges that could only print extremely low number of pages such as above.</p>
Cost per page	<p><b>0.5 Yuan</b></p> <p>* Purchase price of the color ink cartridge: 150 Yuan            * Ink Cost = 150 Yuan ÷ 323 pages</p>	<p><b>0.7 Yuan</b></p> <p>* Purchase price of the color ink cartridge: 95 Yuan            * Ink Cost = 95 Yuan ÷ 138 page</p>

### 3.3 Comparison of Ink water fastness

Because there were many exudations in the black ink print in document printing, we dropped one drop of water on the printed document and let it sit for one day.

There was no difference in the document printed by the genuine ink, but in the document printed by the imitation ink, there was significant exudation such that it was illegible and proved that the preservation of the document is poor.



= Water was dropped on this portion

<Printing Conditions> \* Printer used: PIXMA iP2580, Driver Version: Ver. 1.80 (Driver for PIXUS iP2500) \* Paper used: Canon SW-101 A4 \* Data used: ISO/IEC 24712 Data \* Print Settings: Paper setting/Normal Paper, Print Quality/Normal, Color/Density: Automatic <Test Conditions> \* Document printed with the above printing conditions was dried for over 24hours and one drop of water was dropped by a dropper. The above image is the document after 24 hours after dropping the water.

### 3.4 Condition of Seal

<Ink Leakage>

There was ink leakage in some of the imitation products. It could be the change in atmospheric pressure when shipping by air; however, there was no ink leakage in the genuine product which was similarly shipped by air. (Imitation Color Ink, 4 out of 15, Imitation Black Ink, 2 out of 15).



<Others>

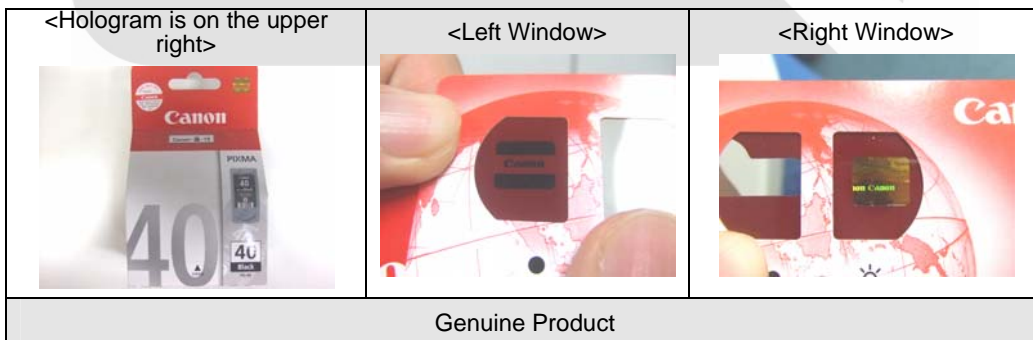
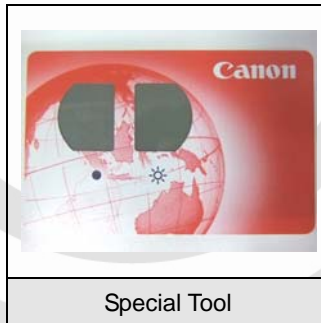
Film of the inner box of some of the imitation products did not peel off neatly, but those of the genuine products all peeled off neatly.

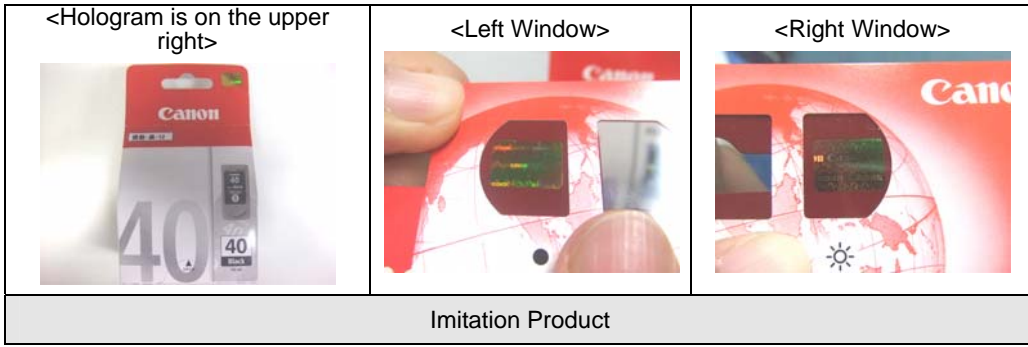


### 3.5 Examples of distinguishing methods between genuine ink cartridge and imitation ink cartridge

#### 1 Check by Hologram

When observing the hologram located on the upper right of the external package using a special tool, it is bright in the right window and dark in the left window for the genuine ink. However both are bright for the imitation ink. By purchasing the ink at a shop that can verify this difference, it will be possible to not purchase an imitation product.





## 2 Check by External Packaging

Letters and illustrations on the external package of the imitation products are not as clear as those on the external package of the genuine products.

### A. Letters (Enlarged image of the letters in the red square of the external package)



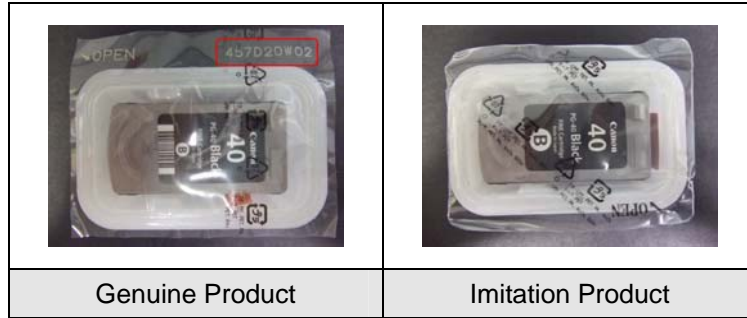
### B. Illustrations (Enlarged image of the illustration in the red square of the external package)



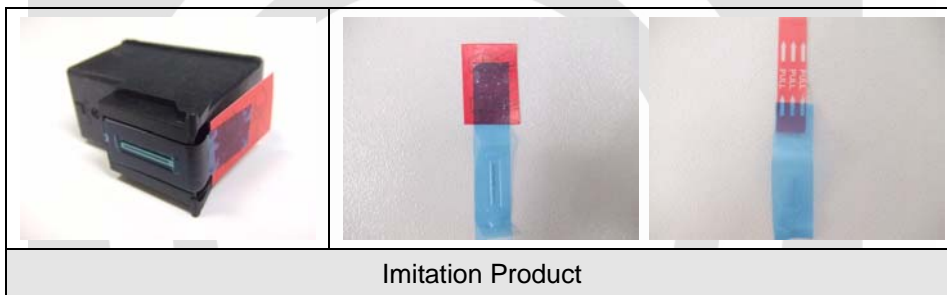
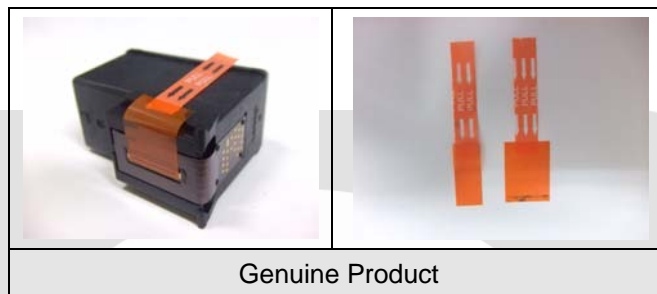
## 3 Check by Inner Package

It is possible to check if it is an imitation product or not after opening the external package.

### A. There is a number (rod number) on the upper right of the genuine ink cartridge's inner package film, but there is no number printed on the inner package of the imitation ink cartridge.

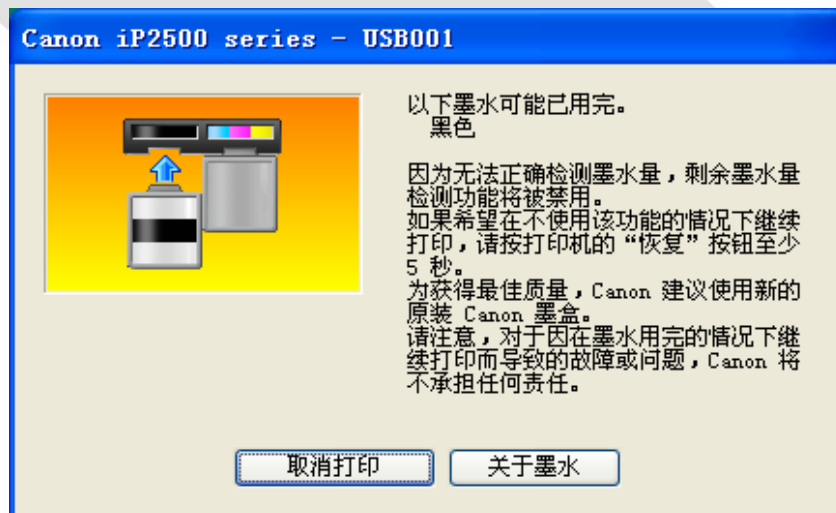


B. Color of the Protection Seal on the Head is different



4. Check by the error message from the printer driver

If an imitation ink cartridge is set in the printer, the printer driver is unable to detect the remaining ink amount in the cartridge, and an error message instructing to reset will be displayed. This message will not be displayed if a new genuine product is set in the printer and therefore, it is possible to judge if the ink cartridge is an imitation product or not at this point.



## 4 Test Overview

Comparison evaluation of this report was conducted by the below test method.

### 4.1 Equipment and Material Used

- Printer: Canon PIXMA iP2580 (Driver Version: Ver. 1.80)
- Ink: PG-40 (Black Cartridge) 12 Genuine Products, 12 Imitation Products; PG-41 (Color Cartridge) 12 Genuine Products, 12 Imitation Products
- Paper: SW-101 A4 (for Document Printing), SP-101 A4 (for Photo Image Printing)
- Data: ISO/IEC 24712 data (for Document Printing), SCID Images N1A, N2B, N3B, N4B, N5B.tif (for Photo Image Printing)

### 4.2 Print Setting

<Document Printing>

Paper Setting: Normal Paper, Printing Quality: Normal, Color/Density: Automatic

<Photo Image Printing>

Paper Setting/Super Photo Paper, Printing Quality: Normal, Color/Density: Automatic, Full page printing, no frame: overflow/maximum

### 4.3 Test Procedure

<Document Printing>

Printed 20 sets of ISO/IEC 24712 Data (5 pages\*), total of 100 pages as 1 cycle and conducted repetitive printing of this cycle until 6 black cartridges and color cartridges were used up.

\*5 Types of documents: Business Letter 0.1.pdf, Spreadsheet 0.1.pdf, News Letter 0.1.pdf, Slide 0.1.pdf, Diagnostic 0.1.pdf

<Photo Image Printing>

Printed 2 sets of 5 types of images of SCID Images, N1A.tif, N2A.tif, N3A.tif, N4A.tif, N5A.tif, total of 20 pages as 1 cycle and conducted repetitive printing of this cycle until 6 color ink cartridges were used up.