Product Specification Manual

Aqua-Shield Inkjet printable

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Document No.MBI/AS/01

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Contents

1. Objective

This specification document defines the requirement for Aqua shield inkjet printable cdr's & dvdr's.
This document includes specification for:

- Physical layout of label side.
- Aqua shied Inkjet label features & characteristics.
- Aqua shield product quality test & their specification.

2. Scope

This document covers/ applicable to Aqua shield inkjet label surface disc.

3. Prerequesities

This document is best understood in the context of Aqua shield inkjet label printable systems, this document assumes reader has understanding of following areas:

- Optical disc manufacturing
- Characteristics of optical disc format to which Aqua shield label for example cdr, dvdr…etc.
- Interaction between Aqua shield disc & Inkjet printers.

This document assumes that you are familiar with existing standard & that the discs you enable are in full compliance to these standards. Example of document describing those standards includes:

- Orange book II, Orange book, III
- Red book.

4. Back Ground

Aqua shield is one of its kind value added commodity, falls under printable product category specially developed for end users for printing ready/customized artwork over to the label surface.

Application:

- Home & business purpose.
- Software industry for customized recording & label printing.
- For special occasion.
- High Volume sample printing.

- For promotional purpose.
- Data presentation.
- In medical Industry.
- Movies.

5. General properties & features

Aqua shield is white inkjet label having inkjet printable characteristics, labeled on the optical media through label applicator, having following properties that differentiate it from other printable products:

- Water resistance.
- Scratch resistance.
- Improved shelf Archival & shelf life.
- Image is permanent & durable.
- Whiteness.
- Smoothness.
- Uniform color till Hub.
- Extended print area. (Up to Hub).
- Label application is fast, replacing screen printing (No UV ink is required).

6. Terms used in this specification

Please see the “MBI terms informative” for definition of the terms used in this document.

7. Standard test condition

Unless specially stated to the contrary, Aqua shield label disc shall be tested using CMY inkjet printers available in the market, recommended printers are:

Signature Pro/IV/Z6
Canon pixma ip5000/5800
Bravo II/Bravo-Pro
Epson

In the test environment, the air immediately surrounding the tester shall have the following properties:

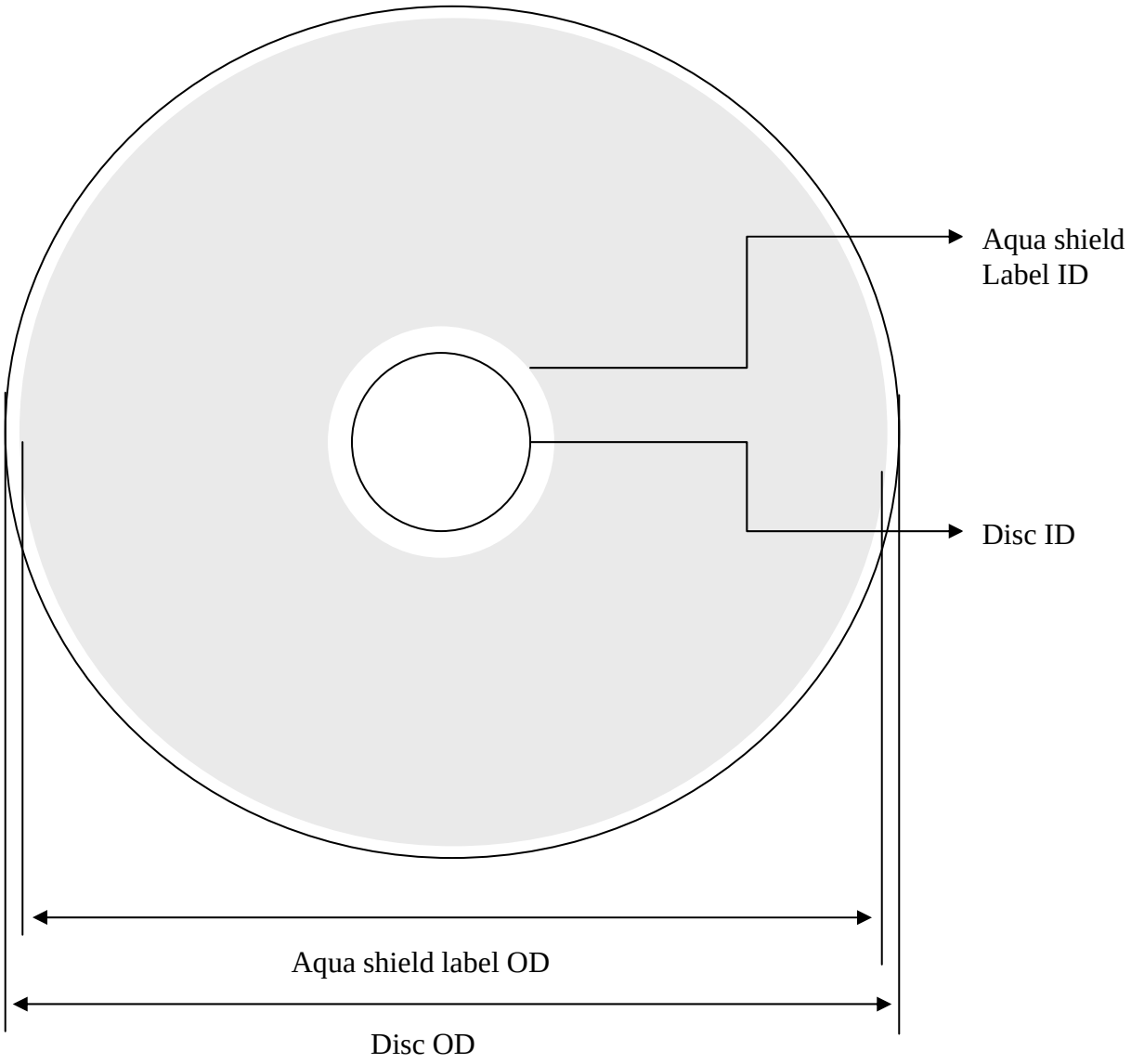
- Temperature: 23d +/-2d
- Relative humidity: (Rh) 45% to 55 %
- Atmospheric pressure: 60 kPa to 106 kPa

No condensation on the optical disc shall occur before testing; it is recommended that before testing, label surface of the disc shall be cleaned according to the instruction of the manufacture of disc.

7.1 Conformance to other standards

Aqua shield disc must meet all requirements of the standards associated with data side. Any parameter not explicitly identified in this document is assumed to have the value stated in underplaying standard. These requirements must be met before & after labeling the disc.

7.2 Label side disc layout



7.3 Disc & Aqua shield Label Dimension

Parameter	AIM	USL	LSL	Note
Disc ID	15			For reference only
Disc OD	120			For reference only
Aqua shield Label ID	23			For reference only
Aqua shield Label OD	118			For reference only

Note:

- Value & tolerance is specified in underlying standard.
- Aqua shield Label ID/OD may change as per individual customer requirement.

7.4 Label Material

Only specified material to be used that meets the aqua shield properties, these material shall meet the requirement of MBI standards & should not contain any toxic/ban elements, meeting all safety standards.

7.5 Electrical/Mechanical properties

Mechanical & electrical properties of bare disc shall meet the Orange book/Red book specification. After aqua shield labeling on bared disc, only guarantee of read/write function shall be assured.

8. Media ID parameter

Refer MBI standard unless & until individual customer requirement is given.

9. Quality test for printable label surface

9.1 Adherence test

Adherence properties of aqua shield label are checked against disc surface, it shall meet the criteria as per underlying MBI standards. There are three type of test for ensuring adherence properties:

Process/Test	Parameter	Instrument	Specification
Tape test	Peel off	Scotch tape	No peel off
Nail test	Scratch	Manual	No scratch
Scratch resistance	Scratch	Heidon tester	No scratch at 400gm

Refer Annexure 01 for tape test

9.2 Printability Test

Aqua shield inkjet label disc shall pass all criteria of printable surface in recommended inkjet printers as per MBI standards. For more detail refer MBI printability test WI.

Parameter	Specification	Printers
Drying time	<120Sec	
Tackiness	No tackiness	Inkjet printer
Burr/bleed	As per MBI std	
Resolution	As per MBI std	
Printing quality	As per MBI std	

9.3 Water resistance test

This test ensures the aqua shield (water proof) charters ices of Aqua shield label surface, thus shall pass all the criteria as per MBI standard.
Test procedure:

- Print the desired artwork on aqua shield disc in inkjet printers.
- Rinse the water on Aqua shield label surface through water shower for one minute continuously.
- Wipe the label surface to remove the water.

- Dry it for 30 minutes
- Judgment-as per MBI standard.

Parameter	Specification
Print peel off	No print peel off
Color	No discolor
Sticker peel off	No sticker peel off

9.4 Aqua shield label thickness measurement

Ensuring aqua shield label thickness shall pass criteria of MBI standards.

Parameter	Instrument	Specification (Micron)
Thickness	Micrometer (LC- 1u)	140+/-20

9.5 Reliability test

Reliability test done to ensure consistent product performance over a period of life. Aqua shield disc under going this test shall meet the criteria as per MBI standards.
For more detail, refer MBI Qualification SOP.

Parameter	Specification	Instrument	Environment condition
Discolor	No discolor	Weiss	80d/85%Rh/96Hrs
Wrinkle	No wrinkle		
Label glue strength	No disturb glue		
Printability test			
Drying time	<120 sec		
Tackiness	No tackiness		
Blur/bleed	As per MBI std		
Print peel off	As per MBI std		
Printing quality	As per MBI std		

10. Printer Compatibility

Aqua shield inkjet label disc shall have compatibility with various inkjet printers during printability. Disc-printer compatibility matrix given below for reference.

Inkjet Printers	Compatibility
Signature Pro	Ok
Signature IV	Ok
Signature Z6	Ok
Bravo II	Ok
Bravo Pro	Ok
Epson	Ok
Canon pixma ip3000	Ok
Canon pixma ip 5000	Ok
Canon pixma ip 8000	Ok

11. Label surface aesthetic criteria

11.1 Sampling Plan

Visual sampling shall be done as per standard IS 2500 Special inspection level S4 normal & shall be applicable for inspection of aqua shield label disc at IPQC & OQA1 & OQA2 stage.

Guide Lines- AQL vs. Lot size:

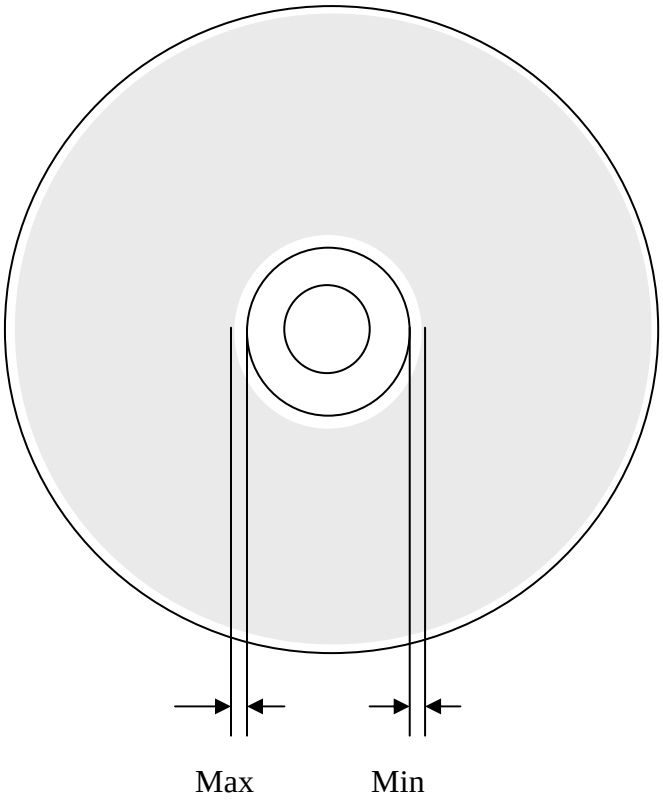
Attribute	Inspection level	AQL	Lot size	Sample size code	Sample size	Acceptance No.	PPM
Disc Cosmetic	Special inspection level S4 Normal	0.1	35001-150000	J	80	0	0
			150001-500000	J	80	0	0
			500001 and over	K	125	0	0
		0.4	35001-150000	J	80	1	12500
			150001-500000	J	80	1	12500
			500001 and over	K	125	1	8000
		1.5	35001-150000	J	80	3	37500
			150001-500000	J	80	3	37500
			500001 and over	K	125	5	40000

Stage	Sampling	AQL level	Specification	Frequency	Remark
Out going inspection	80	Critical-0.15	0 critical defect	Lot size- 500k	For reference only
		Major-0.4	1 Major defect		
		Minor-1.5	3 Minor defect		

Note:
Above criteria is for reference only, refer MBI standard unless & until individual customer requirement is given.

11.2 Label Visual defect description

Eccentricity:



Defect	Specification
Eccentricity	Max-Min<=0.3mm

Black Spot:

Defect	Defect level	Size (mm2)	Specification
Black spot	Minor	<0.1	3 /100 disc
	Major	0.10 to 0.30	1 /100 disc
	Critical	>0.30	0/100disc

Air Bubble:

Defect	Defect level	Size (mm2)	Specification
Air Bubble	Minor	<0.2	3/100 disc
	Major	0.2 to 0.4	1/100 disc
	Critical	>0.30	0/100 disc

Scratch Line:

Defect	Defect level	Size (mm)	Specification
Scratch Line	Minor	<10	3/100 disc
	Major	10 to 20	1/100 disc
	Critical	>20	0/100 disc

Wrinkle:

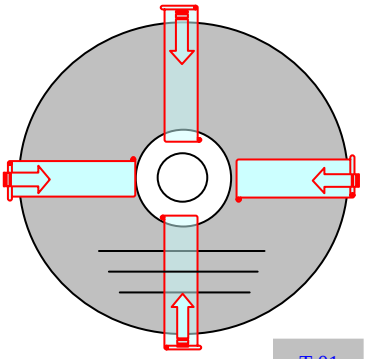
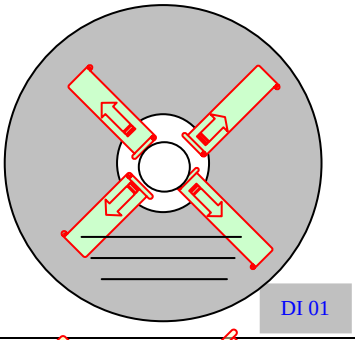
Defect	Defect level	Size (mm2)	Specification
Wrinkle	Minor	-----	0/100 disc
	Major	-----	0/100 disc
	Critical	-----	0/100 disc

12. Limitations

- Aqua shield label disc shall be used in standard printers & professional drives only.
- Aqua shield label disc will not work in car stereo & laptop drives.

13.Annexture 01

INSTRUCTION FOR APPLYING THE TAPE ON PRINTED DISC

p. #	INSTRUCTIONS	VISUAL GUIDE
T 01	1. Take scotch tape with 10cm in length. 2. Apply the tape in T 01 position as shown in fig. 3. Tape with 7 cm in length should be adhere with printed surface, Grip the remaining tape (3 cm in L) in between fore & thumb finger to apply the force for removal. 4. Press tape with thumb over printed surface. Ensure outer edge of tape along the length should be on periphery of OD of disc. 5. Leave for 5 sec. 6. Remove the tape at 45 d from the arrow side as shown in fig. **7.** Repeat the above process 4 times to cover entire outer surface of printed disc.	
DI01	1. Take scotch tape with 7 cm in length. 2. Apply the tape diagonally in DI 01 position as shown in fig. 3. Tape with 5 cm in length should be adhering with printed surface, Grip remaining tape (2 cm in L) in between the fore & thumb finger to apply the force for removal of tape from printed surface towards inside. 4. Press tape with thumb over printed surface. Ensure Adhesion of tape start from mid area of hub &end at the periphery of printed disc along diameter length 5. Repeat 5 to 7.	
DI02	1. Take scotch tape with 7 cm in length. 2. Apply the tape diagonally in DI 02 position as shown in fig. 3. Tape with 5 cm in length should be adhere with printed surface, Grip the remaining tape (2 cm in L) in between fore & thumb finger to apply the force for removal of tape from printed surface towards outside. 4. Press the tape with thumb over printed surface. Ensure Adhesion of tape start from upper mid printed area & end at the mid of hub of printed disc along diameter length **5.** Repeat 5 to 7.