

Intro. B&B's Cosmetic Moisturizer

Distributed By –

UMC Ingredients
160 Chubb Ave., Ste. 206
Lyndhurst, NJ 07071
(201) 896-8666



● Natural Moisturizer

- ❖ BPDO-800N(1,3-Propanediol)
- ❖ BDO-800N(2,3-Butanediol)
- ❖ BBG-800N(1,3-Butylene Glycol)
- ❖ BGL-800N(Glycerin)



● Synthetic Moisturizer

- ❖ BMP-800(2-Methyl-1,3-Propanediol)
- ❖ BBG-800(1,3-Butylene Glycol)
- ❖ BDG-800(Dipropylene Glycol)
- ❖ BIP-800 (3-Methyl-1,3-Butanediol)

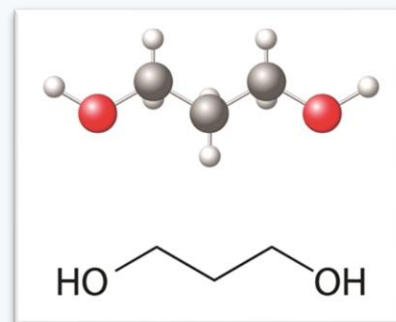


❖ BPDO-800N(1,3-Propanediol)

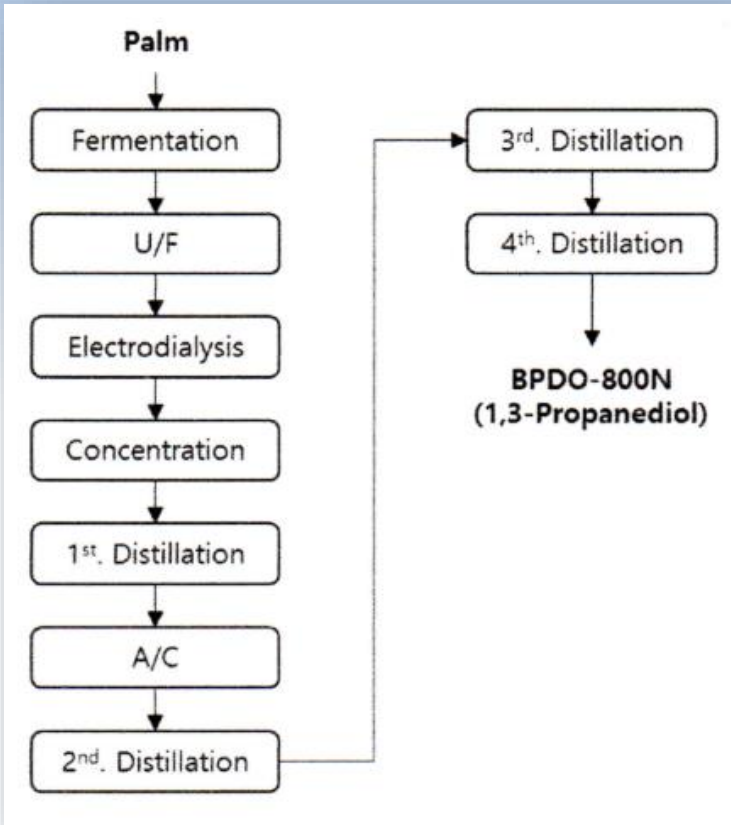
- Natural Origin 1,3-Propanediol
- 100% natural extracts Palm
- Propanediol is a glycol on 100% natural and come from palm oil by microorganism fermentation.
- PDO is **colorless and odorless with GMO free and non toxic chemicals.**
- It is very suitable for skincare and personal care cosmetics as a cosmetic solvent, humectant, emollient, and preservative booster instead of synthetic and petroleum glycols.
- It gives a strong benefit to formulator to have a light skin feeling and easy spreadable performance. 1,3 Propanediol has non skin irritable and good anti-microbial boosting effect. **RSPO approved raw material used.**

Technical Data of BPDO-800N

MSDS name	1,3 Propanediol / 1,3 Propylene glycol
INCI name	Propane-1,3-diol, 1,3-Dihydroxypropane, Trimethylene glycol
CAS / EC number	504-63-2 / 207-997-3
Chemical equation	$C_3H_8O_2$
Molecular amount	76.095 g/mol
Appearance	Transparent Liquid / Colorless, Odorless
Aspect	Colorless, Odorless
Purity (by GC)	Not less than 99%
Boiling/Melting Point	214°C / - 27°C (ASTM D-3418)



Bio Based Process



It is 100% natural glycol with **GMO free and non toxic chemicals**. It derives from palm oil by microorganism fermentation.



ISO 9001 & 14001

Capacity : 100~150 mt/month



COSMOS approved

Natural and Organic Certification for Cosmetics

FM3(COS)09en issued the: 20/02/2020 Attestation n°: 1022281

ECOCERT

ATTESTATION OF CONFORMITY - RAW MATERIALS - COSMOS

This attestation has been granted by ECOCERT Greenlife to the company:

B&B CO., LTD.

RM 210, Gweli Estate, 560, Dongtan Baiseok-ro
18454 HWASEONGSI
KOREA (THE REPUBLIC OF)

whose non-organic raw materials (listed hereafter) have been assessed as compliant to the standard:

COSMOS (v3.0 - January 2019)

This attestation of conformity has been issued on the basis of the terms and conditions for the verification of raw materials according to the COSMOS standard available on the COSMOS association website: <https://cosmos-standard.org/> and the conformity has been established according to the requirements related to the raw materials contained in this standard.

Issued in: L'Isle Jourdain,
the: 20/02/2020,
Emilie CHERHAL,
ECOCERT Greenlife General Manager

Valid until: 31/12/2020

Page 1 of 2

FM3(COS)09en issued the: 20/02/2020 Attestation n°: 1022281

ECOCERT

ATTESTATION OF CONFORMITY - COSMOS

List of the approved raw materials of: **B&B CO., LTD.**

PPAI: Physically Processed Agro-ingredients
CPAI: Chemically Processed Agro-ingredients
NRI: Non Natural Ingredients (Petrochemical origin)
PeMo: Petrochemicals Moiety
CSPO: Raw material proceeding from certified sustainable palm/palm kernel oil
Without animal origin: Raw material compliant to the complementary assessment « without animal origin » in force
The asterisk * is used to identify the commercial name of the raw materials concerned by the appendices II and/or V of the Cosmos-standard.
Unless an exception, the following references are published on the ECOCERT raw materials online database for approved raw materials available at the following link: <http://ap.ecocert.com/ecoproducts>.

Commercial name / INCI / Function	%PPAI	%CPAI	%NRI	%PeMo	Restriction	Approved since
BDO-800N 2,3-Butanediol	0	100	0	0		20/02/2020
Humectant, Moisturiser, Preservative-booster						
BGMCY-900 Glyceryl Caprylate	0	100	0	0		20/02/2020
Emollient, EmulsiFing, Moisturiser						
BP-800N Pentylene Glycol Natural	0	100	0	0		31/01/2020
Anti-microbial, Moisturiser						
BPDO-800N 1,3-Propanediol	0	99,7	0	0		31/01/2020
Humectant, Moisturiser, Preservative-booster						

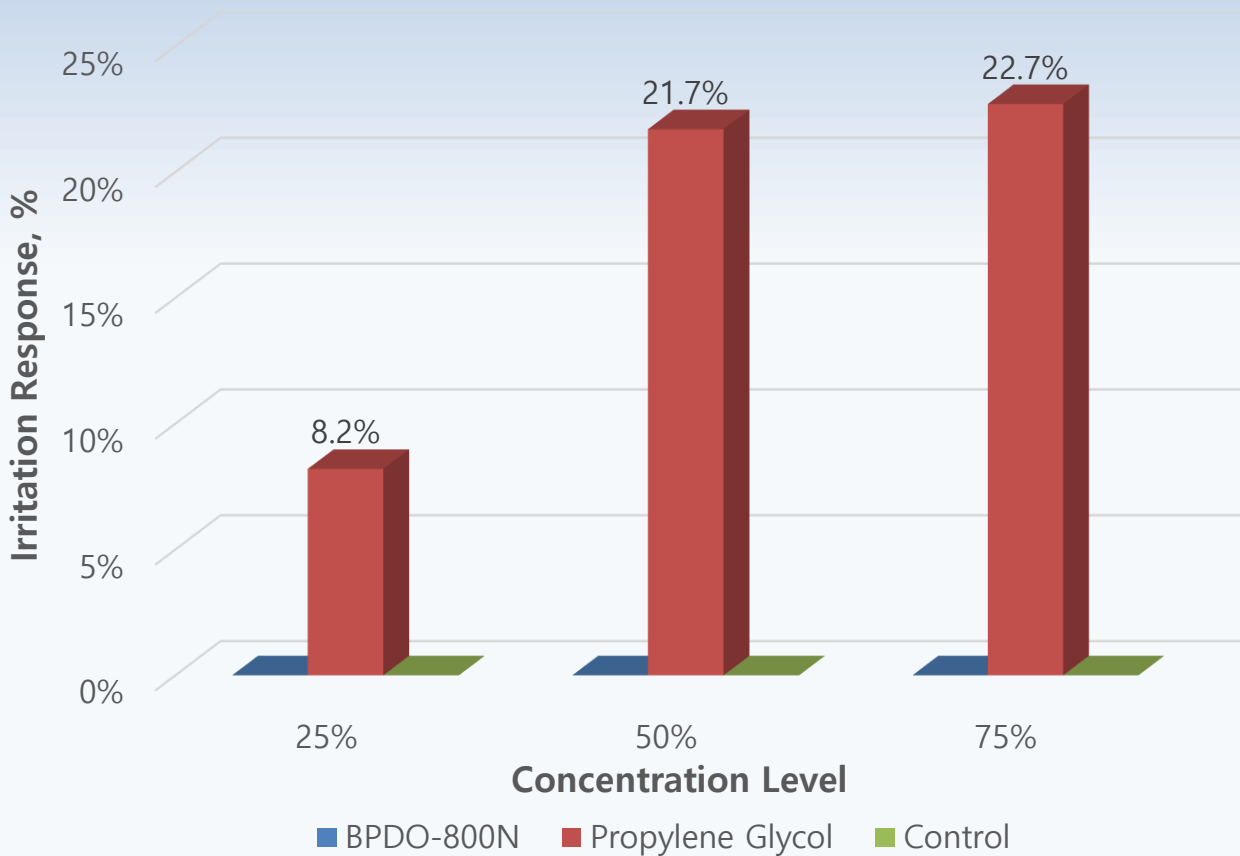
Valid until: 31/12/2020

WARNING: The sole purpose of the present attestation is to show the raw material(s) to be used in finished products to be certified as compliant to the standard specified in the list above. In no event the attestation shall constitute proof of the actual availability of the raw material(s) to this standard. In that regard, the raw material(s) listed in this attestation must be quality and/or marketed as registered raw material(s) certified in accordance with the above mentioned standard. The absence of the raw material(s) listed in the present attestation is a necessary condition for the above-mentioned benefit(s). In the beneficiary's ability to ensure that its own suppliers are aware of the requirements and conditions defined in the terms and conditions and generating any reference to and use of the approval of the raw material(s) and that they abide by it.

Page 2 of 2

Table 1. No Skin Irritation

Human Skin Patch Test Results



▪ Human Skin Closed Patch Test

A. Panel demographic : 207

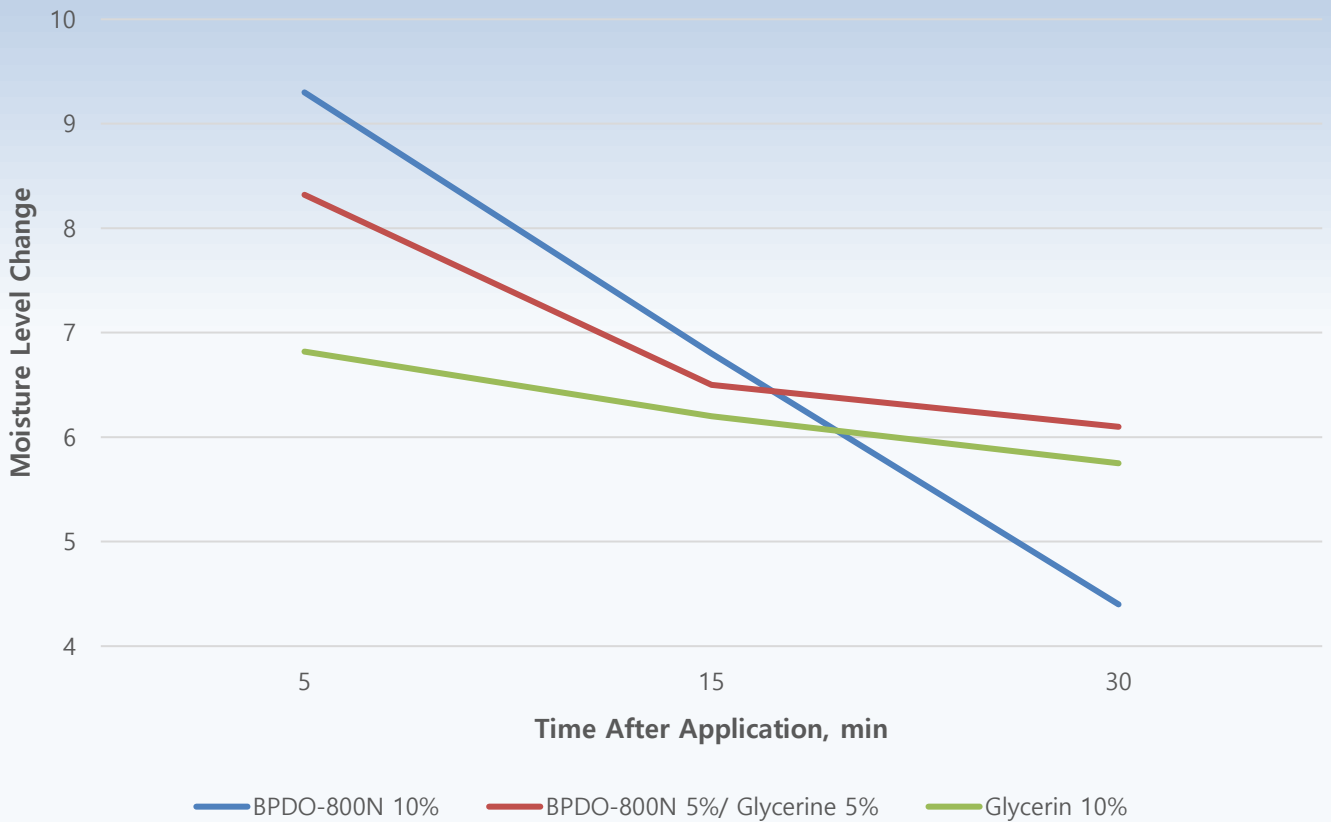
B. Sample : 1,3-Propanediol, 1,2-Propanediol and control

▪ Test Result :

- No visible irritation reaction is found with 75% 1,3-Propanediol
- No abnormalities such as allergies are found even when the concentration is high

Table 2. High Moisturizing Effect (1)

Skin Moisturization Increase Compared to 10% Glycerin



1. Moisturizing Effect VS Glycerin

Test Condition :

A. Skin Moisture Sensor (ASA-M2)

B. 1,3-Propanediol (10%)

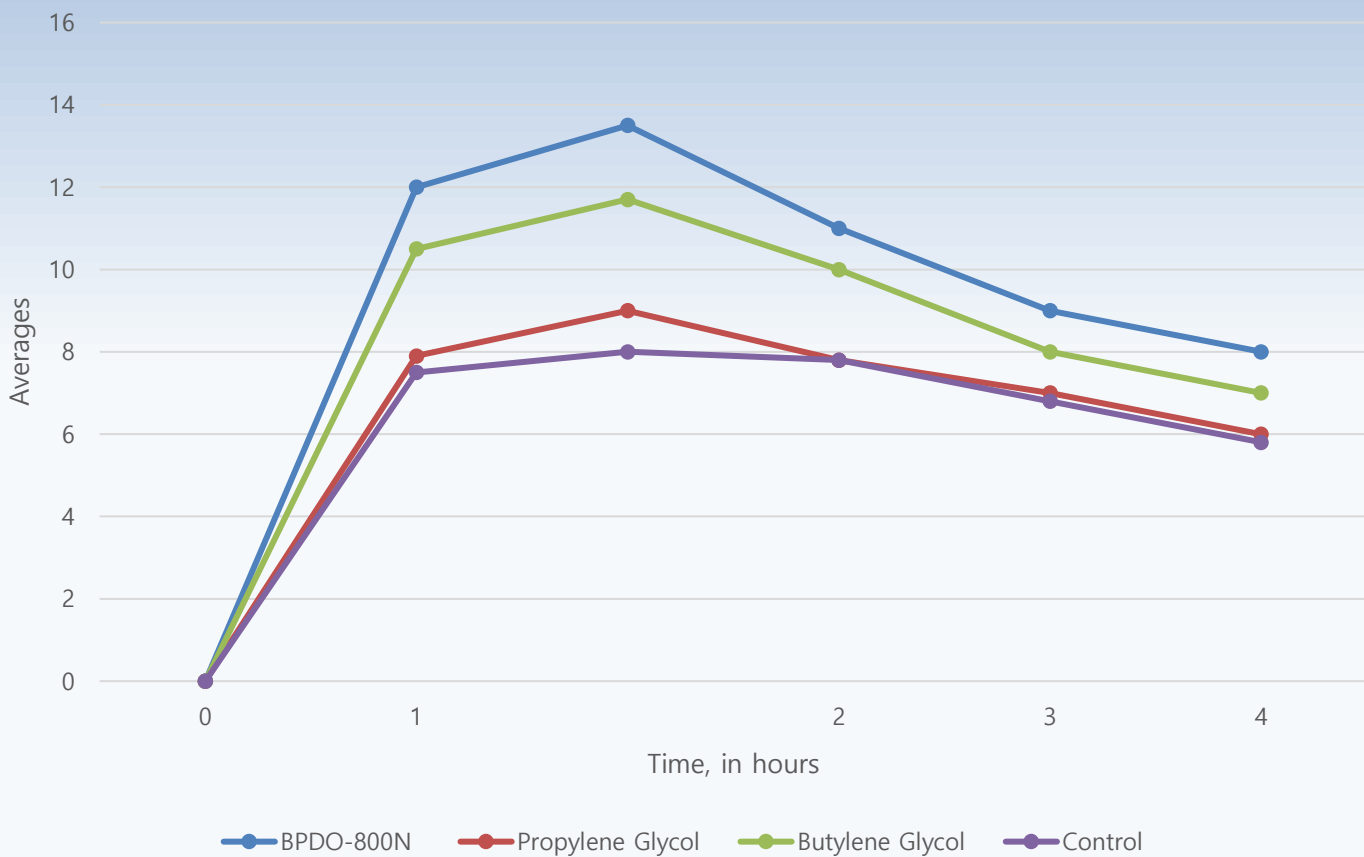
1,3-Propanediol (5%) / Glycerin (5%)

Glycerin (10%)

▪ Test Result :

- 1,3-Propanediol has better moisturizing effect than Glycerin in the early stage
- Mixing 1,3-Propanediol with Glycerin can increase moisturizing effect and reduce sticky feeling of Glycerin.

Table 2. High Moisturizing Effect (2)



2. Moisturizing Effect VS 1,3-Butanediol and 1,2-Propanediol

Test Condition :

- A. Skin Moisture Sensor 825PC(Courage + Khazaka)
- B. 1,3-Propanediol (5%)
1,2-Propanediol (5%)
1,3-Butanediol (5%)

▪ Test Result :

- 1,3-Propanediol has better moisturizing effect than 1,2-Propanediol and 1,3-Butanediol

Table 3. Excellent Consumer Efficacy Performance

1. Moisture Consumer Perception Test

Test Condition :

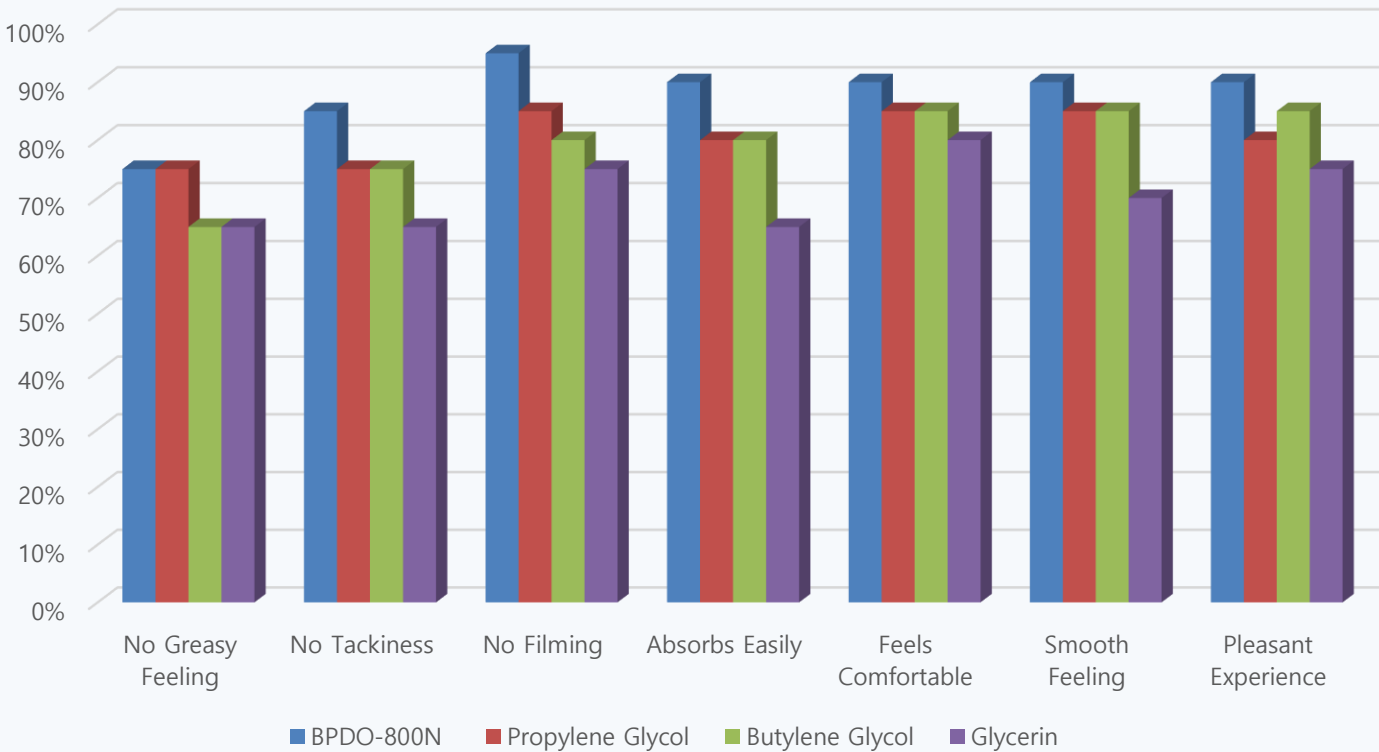
A. Skin Lotion

B. 2,3-Butanediol (5%), 1,3-Butanediol (5%) /
1,3-Propanediol (5%), Glycerin (5%)

▪ Test Result :

- The skin lotion formulated with 1.3-Propanediol has better consumer efficacy performance than others

Skin Lotion with 5% glycol



❖ BDO-800N(2,3-Butanediol)

- Natural Origin 2,3-Butanediol(2,3-BDO)
- Natural replacement of 1,3 Butylene Glycol (1,3-BG) and 1,3 Propanediol (1,3-PDO)
- 100% natural extracts Palm
- **2,3 Butanediol extensively exists in nature and can be made by natural synthesis only.**
- It is 100% natural glycol with **GMO free and non toxic chemicals.** It derives from palm oil by microorganism fermentation. 2,3-BDO has similar moisturizing & preservative effect to 1,3 BG and show colorless / odorless.
- It can be used for skincare and personal care cosmetics as a cosmetic solvent, humectant, emollient, and preservative booster instead of synthetic and petroleum glycols.
- **2,3 Butanediol has non skin irritable and good anti-microbial boosting effect. RSPO approved raw material used.**

Technical Data of BDO-800N

MSDS name	2,3-Butylene glycol
INCI name	Butane-2,3-diol, Dimethylene glycol, 2,3-Dihydroxybutane
CAS / EC number	513-85-9 / 208-173-6
Chemical equation	$C_4H_{10}O_2$
Molecular amount	90.122 g/mol
Appearance	Transparent Liquid / Colorless, Odorless
Aspect	Colorless, Characteristic
Purity (by GC)	Not less than 97%
Boiling/Melting Point	181.7 °C / 34.4 °C (ASTM D-3418)

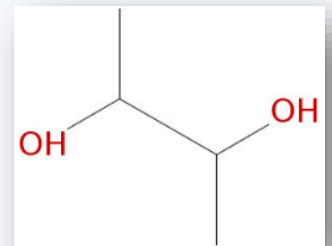


Table 1. Only Naturally synthesized butanediol

□ Bio-based Process

- **Simple** (economics ↑), **Eco-friendly** (pressure, temperature, GHG ↓), **Stereoisomer-specific**



2,3-BDO is a natural substance. It exists everywhere (soil, food and etc)
 2,3-BDO is produced through eco-friendly fermentation and separation process
 It can be used in Cosmetic and food.

2,3-BDO is only naturally synthesized butanediol

1,3-butylene glycol (1,3-BG), 1,4-butanediol (1,4-BDO), and 1,3-propanediol (1,3-PDO) on market are generally produced through artificial pathways or chemical synthesis

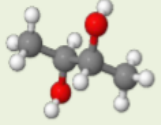
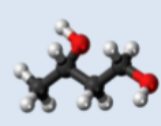
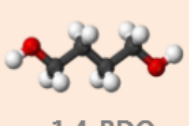
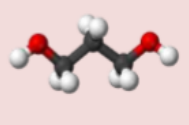
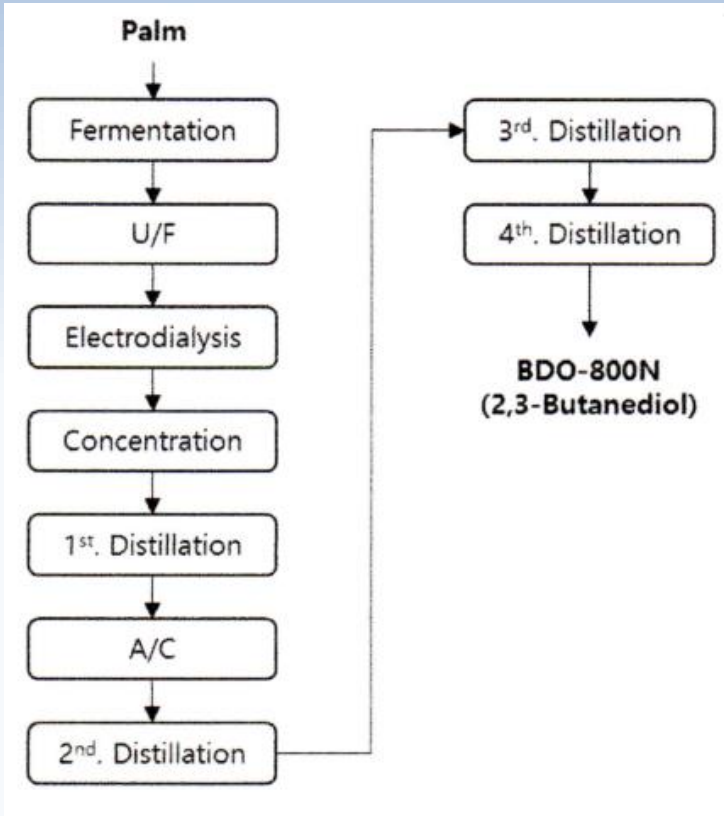
 2,3-BDO	Bio	Glucose → Pyruvate → Acetolactate → Acetoin → 2,3-BDO non-Toxic Natural pathway
	Chemical	Cracked Gases → C4 Raffinate II → Chlorohydrins → Butene oxide → 2,3-BDO <small>Chlorohydrination (Toxic, Severe irritation) Cyclization (NaOH) (Toxic, Severe irritation) Hydrolysis (50 bar, 160-220°C)</small>
 1,3-BG	Bio	Glucose → Pyruvate → Acetyl-CoA → 3-Hydroxybutyraldehyde → 1,3-BG <small>Toxic (Severe irritation)</small>
	Chemical	Ethylene → Acetaldehyde → 3-Hydroxybutyraldehyde → 1,3-BG <small>Hydration Aldol Hydrogenation Toxic (Severe irritation)</small>
 1,4-BDO	Bio	Glucose → Succinate → α-Ketoglutarate → 4-Hydroxybutyrate → 1,4-BDO <small>Neurotransmitters (drugs)</small>
	Chemical	Ethylene → 2-butyne-1,4-diol → 1,4-BDO <small>+Formaldehyde (5-20 bar, 100-110°C) Hydrogenation</small>
 1,3-PDO	Bio	Glucose → Glycerol → 3-hydroxypropionaldehyde → 1,3-PDO <small>Toxic (Severe irritation)</small>
	Chemical	Acrolein → 3-hydroxypropionaldehyde → 1,3-PDO <small>Hydration (50-70°C) Hydrogenation</small> Ethylene oxide → 3-hydroxypropionaldehyde → 1,3-PDO <small>Hydrocarbonylation Toxic (Severe irritation) (135 bar, 75-140°C)</small>

Table 2. Bio Based Process



It is 100% natural glycol with **GMO free and non toxic chemicals**. It derives from palm oil by microorganism fermentation.



ISO 9001 & 14001

Capacity : 100~150 mt/month



COSMOS approved

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FM&S(COS)-090n
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Emilie CHERHAL,
ECOCERT Greenlife General Manager

Valid until: 31/12/2020

Page 1 of 2

ECOCERT Greenlife S.A.S. - Capital 20 000 000 € - BP 67 - 33000 L'ISLE JOURDAIN - FRANCE
TVA Intra-Community n° FR 89 898 963 899
Phone: +33 6 82 67 21 18 - Fax: +33 6 82 67 21 09 - Mail: info@ecocert.com

FM&S(COS)-090n
Issued the: 20/02/2020

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ATTESTATION OF CONFORMITY - COSMOS

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Commercial name / INCI / Function	%PPAI	%CPAI	%NB	%PeMo	Restriction	Approved since
BDO-800N 2,3-Butanediol	0	100	0	0		20/02/2020
Humectant, Moisturiser, Preservative-booster						
BGMCY-900 Glyceryl Copolyate	0	100	0	0		20/02/2020
Emollient, EmulsiFing, Moisturiser						
BP-800N Pentylene Glycol Natural	0	100	0	0		31/01/2020
Anti-microbial, Moisturiser						
BPDO-800N 2,3-Propanediol	0	99,7	0	0		31/01/2020
Humectant, Moisturiser, Preservative-booster						

Valid until: 31/12/2020

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Page 2 of 2

ECOCERT Greenlife S.A.S. - Capital 20 000 000 € - BP 67 - 33000 L'ISLE JOURDAIN - FRANCE
TVA Intra-Community n° FR 89 898 963 899
Phone: +33 6 82 67 21 18 - Fax: +33 6 82 67 21 09 - Mail: info@ecocert.com

Table 3. Safety ; No Skin Irritation or Sensitization

Eye Irritation	None
Skin Irritation / Corrosion	None
Eye Irritation / Corrosion	None
Phototoxicity	None
Skin Sensitization	None
Genetic Toxicity	None
Analysis of heavy metal contents	None
Skin Irritation (Human)	None

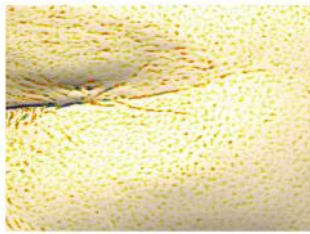


• Skin Benefit Test

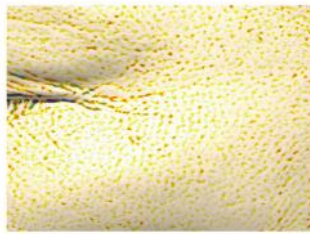
Cosmetic Product : Essence Cream containing 10% 2,3-BDO

Subject : 23 people for 4 weeks

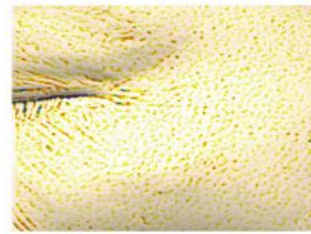
Skin texture improvement (Anti-wrinkle)



0W

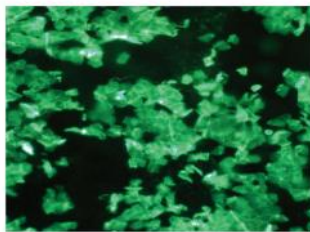


2W

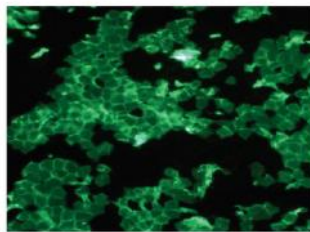


4W

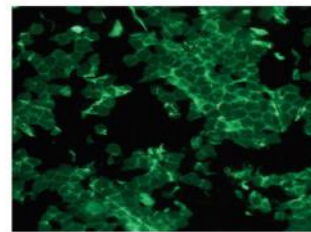
Skin keratin improvement



0W



2W

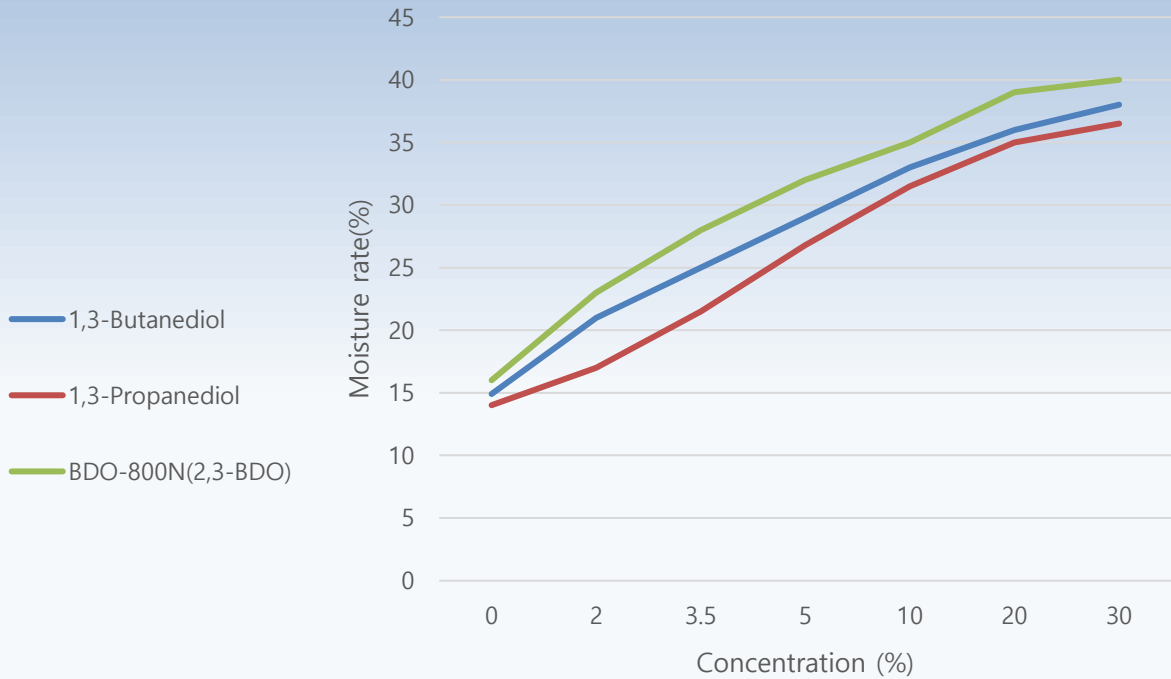


4W

No.	Sample	Mean score
1	2,3-butanediol ((2R,3S)-90)- 20% in D.W.	0.18
2	2,3-butanediol ((2R,3S)-90)- 25% in D.W.	0.00
3	2,3-butanediol ((2R,3S)-90)- 30% in D.W.	0.23
4	2,3-butanediol ((2R,3S)-90)- 40% in D.W.	0.45
5	2,3-butanediol ((2R,3S)-90)- 50% in D.W.	0.70
6	2,3-butanediol ((2R,3S)-90)- 60% in D.W.	0.84
7	2,3-butanediol ((2R,3S)-90)- 70% in D.W.	1.19
8	2,3-butanediol ((2R,3S)-90)- 80% in D.W.	1.29
9	2,3-butanediol ((2R,3S)-90)- 90% in D.W.	1.29
10	2,3-butanediol ((2R,3S)-90)- 100% in D.W.	1.25

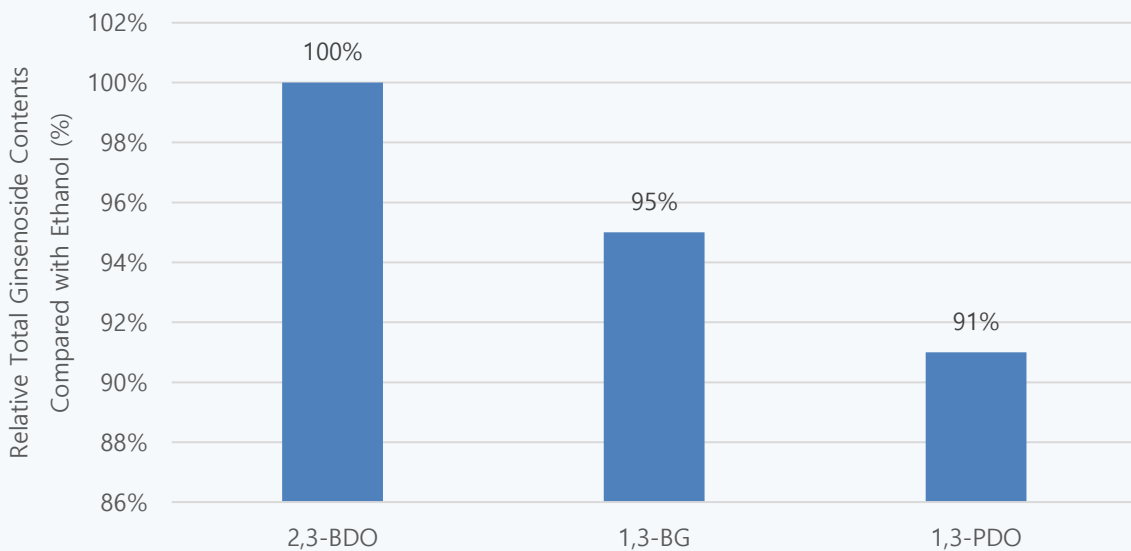
2,3-BDO showed no human skin irritation until the concentration of 40% : 40% 2,3-BDO in D.W. and three other products(#1~4) have the grade of "Non irritant"

Table 5. Efficacy ; Moisturizing Effect



- **Method :** Clinical evaluation by concentration (3 hours lasting effect of Skin hydration)
- **Subject :** 19 Females
- **Test Result :**
 - Similar moisturizing effect to 1,3-BG higher than 1,3-PDO
 - 2,3-BDO \geq 1,3-BG \geq 1,3-PDO

Table 6. Efficacy ; Botanical Extraction



- Korea Red Ginseng Pigment Extraction
- **Method :** Immersion extraction (50°C, 24HR) 0.5g red ginseng in 20g Ethanol, 2,3-BDO, 1,3-BG and 1,3-PDO, respectively (Conc. 50%)
- **Test Result :** There was no difference between 2,3-BDO and ethanol

Table 7. Excellent Consumer Efficacy Performance

1. Moisture Consumer Perception Test

Test Condition :

A. Essence Cream

B. 2,3-Butanediol (10%), 1,3-Butanediol (10%) / 1,3-Propanediol (10%)

C. 50 People per sample.

D. Twice uses per 1 day during 2weeks, Survey evaluation after use.

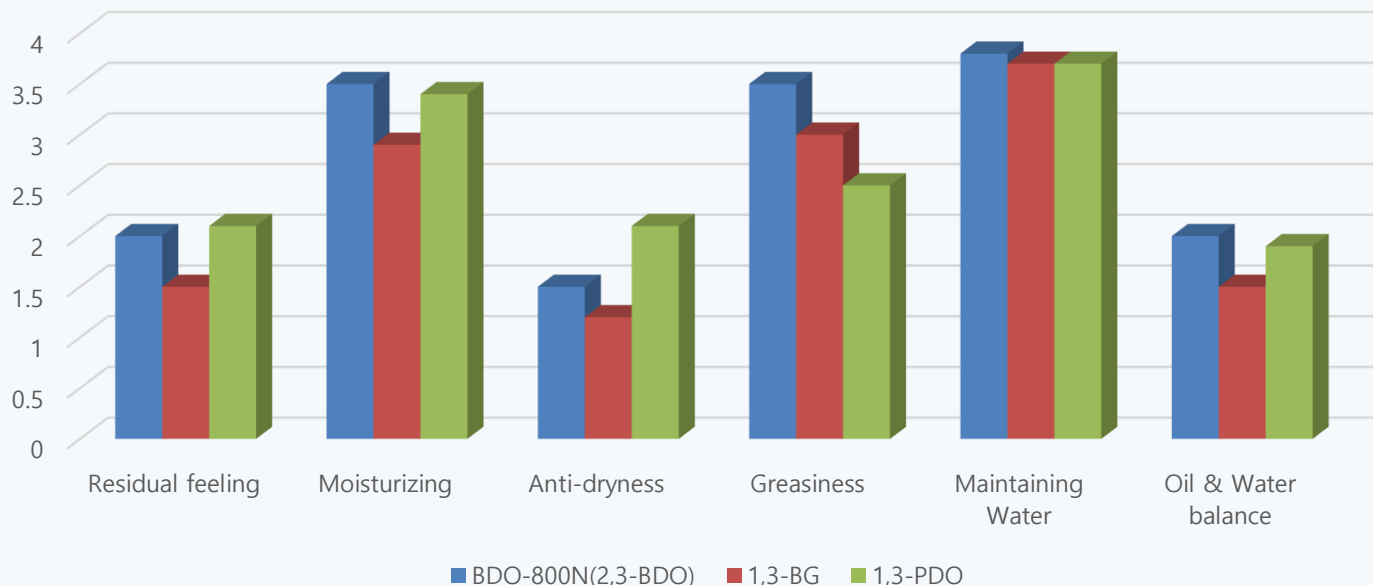
Test Result :

- The Essence Cream formulated with 2,3-Butanediol has better consumer efficacy performance than others

When apply / Immediately after use



After use



❖ BMP-800(2-Methyl-1,3-Propanediol)

- Moisturizer (Synergy with Glycerine)
- BMP-800 (2-Methyl-1,3-Propanediol) can be used Humectant (To prevent moisture loss from the skin).
- Alternative to Butylene glycol
 - Methyl propanediol is **an excellent alternative to usual glycol such as 1.3-butylene glycol, 1.2-propylene glycol, 1.2-pentylene glycol, dipropylene glycol, sorbitol, Glycerin.**
- Odorless / Colorless
- No "Glycol" in the INCI Name
- Good antimicrobial properties

Bacteria	E.Coli	A.Niger	C.Albicans	S.Aureus	P.Aeruginosa
MIC(%)	20	10	20	10	10

- It can reduce significantly the amount of usual preservatives needed in the formulation.
- Clear formulations
 - Methyl propanediol acts as a multipurpose ingredient (emollient, humectant, booster, solvent...). It has a soft and non-tacky feel and it is used to improve skin feel. In association with glycerine, it allows improved feeling and hydration of cosmetic cream.

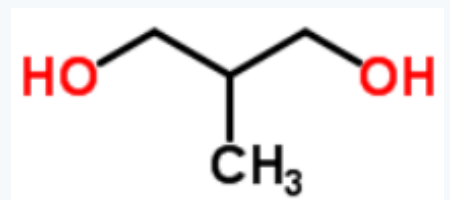
❖ BMP-800(2-Methyl-1,3-Propanediol)

- Fragrance enhancer
- Excellent solubilizing properties
 - water soluble at room temperature and can be added directly in the aqueous phase.
- Good toxicological profile
 - With its excellent toxicological profile and as it is not listed as a preservative regarding the European Cosmetic Regulation, Methyl propanediol can be used without restriction
- Emulsion stability
- Very good disperser
- EWG verified.



Technical Data of BMP-800

MSDS name	2-Methyl-1,3-Propanediol
INCI name	Methyl Propanediol, 1,3-Dihydroxy-2-methylpropane
CAS number	2163-42-0 / EC Nummer 412-350-5
Chemical equation	$C_4H_{10}O_2$
molecular amount	90.12 g/mol
Appearance	Colorless clear Liquid
Aspect	Colorless, Odorless
Purity (by GC)	Not less than 99%
Boiling/Melting Point	123°C / - 91°C



Test report

Table 1. Harmful substance TEST



BEYOND ASIAN HUB, TOWARD GLOBAL WORLD

TEST REPORT

98, Gyoyukwon-ro, Gwacheon-si, Gyeonggi-do, 13810, Korea

TEL 82-63-214-2960

FAX 82-63-214-2964

Report No : TDK-2018-004208

Receipt Date : 2018.07.23.

Representative : Jae Ho Son

Test Completion Date : 2018.08.07.

Company name : B&B Co.,Ltd.

Address : 134-16, Sandan-ro, Gunsan-si, Jeollabuk-do, 54004, Korea

Sample name : BMP-800(2-METHYL-1,3-PROPANEDIOL)

Test Results

TEST ITEM	UNIT	SAMPLE	RESULT	TEST METHOD
Methanol	(v/v)%	-	Not detected	Notice No. 2017-114 of the Ministry of Food and Drug Safety
1,4-Dioxane	µg/g	-	Not detected	Notice No. 2017-114 of the Ministry of Food and Drug Safety
DEHP	µg/g	-	Not detected	Notice No. 2017-114 of the Ministry of Food and Drug Safety
DBP	µg/g	-	Not detected	Notice No. 2017-114 of the Ministry of Food and Drug Safety
BBP	µg/g	-	Not detected	Notice No. 2017-114 of the Ministry of Food and Drug Safety

Y

- Usage of Report : QUALITY CONTROL

- Note :
1. The test results of this test report are only limited in to the samples and sample names provided by the client and do not guarantee the quality of all products of the client. You Can check website (www.ktr.or.kr) or QR code to verify the authenticity of the certificate.
 2. This test report shall be used only within the purpose of its defined usage and shall not be used to public relation, advertisement and lawsuit.
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2018.08.07

Korea Testing & Research Institute

President

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QR Code for forgery

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전자문서본은 시험결과에 대한 참고용입니다.

전자문서본(Electronic Copy)

Table 2. Heavy Metals TEST



Test Report No. F690101/LF-CTSAYHA18-07920R1A

Issued Date : 2018. 08. 01

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Sample No. : AYHA18-07920R1A.001
 Sample Description : BMP-800
 Item No./Part No. : 2-Methyl-1,3-Propanediol / CAS No. 2163-42-0
 Materials : Liquid state

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	0.5	N.D.
Mercury (Hg)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	2	N.D.
Lead (Pb)	mg/kg	With reference to US EPA 3052(1996), US EPA 6010B(1996), ICP	5	N.D.
Arsenic (As)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	2	N.D.
Antimony (Sb)	mg/kg	With reference to EPA 3052(1996), US EPA 6010B(1996), ICP	10	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)
 (2) mg/kg = ppm
 (3) MDL = Method Detection Limit
 (4) - = No regulation
 (5) ** = Qualitative analysis (No Unit)
 (6) Negative = Undetectable / Positive = Detectable

Table 3. Formaldehyde TEST



Test Report No. F690101/LF-CTSAYHA18-07920R1B

Issued Date: 2018. 08. 01

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Result(s)

Formaldehyde

Test Method: EPA8315A. Analysis was conducted by HPLC.

Test Items	Unit	Reporting Limit	Result(s)
			1
Formaldehyde	mg/kg	5	N.D.

Sample description :

1. BMP-800

Note: (1) N. D. = Not Detected (lower than Reporting Limit)
 (2) mg/kg = ppm

Packing & Shelf Life

- Packing : 200kg Steel Coated Drum / 16mt in 20ft Con.
- Shelf Life : 2 years from the manufacturing Date

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