

02 Main Products (Collagen Membrane)

Colla-D : Collagen Membrane



Material Bovine
Model NAME Colla-BS/BH

High Hydrophilic Property

Easy Manipulation

Resorption Period of 6months

Product Comparison Test (Collagen Membrane)

	Manufacturer	Material	Resorption Period
Colla-BH	MedPark	Bovine	Over 6 months
Colla-BS	MedPark	Bovine	Over 6 months
Jason membrane	Botiss	Porcine	3~6 months
Ossix Plus	Datum	Porcine	4~6 months
Bio-Gide	Geistlich	Porcine	Over 5 months
OsseoGuard	Zimmer	Bovine	6 months
CollaGuide	Oscotec	Porcine	3~5 months
Remaix	Matricel	Porcine	3~4 months

02 Product Comparison Test (Resorption Period)

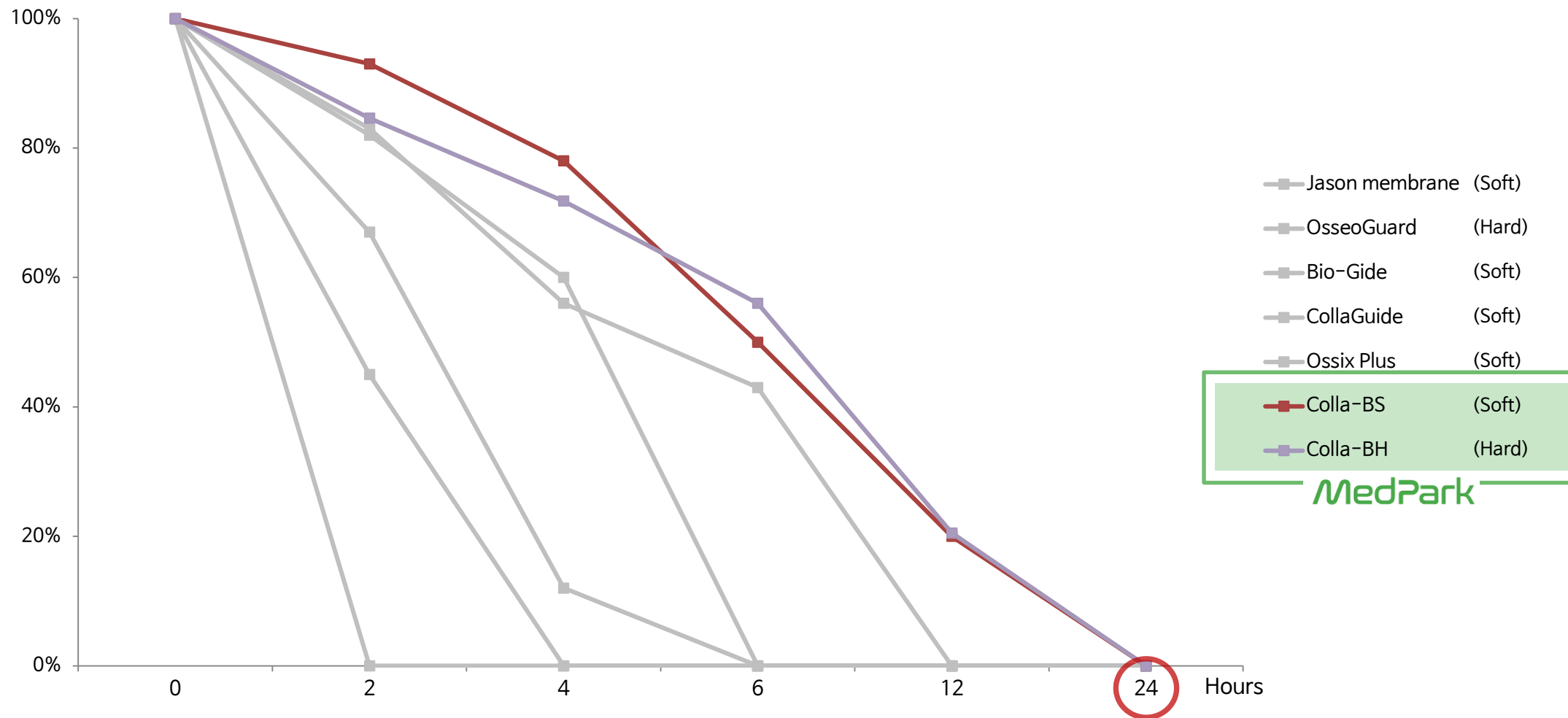
* Experimental Condition

- Concentration of *Collagenase*: 300 unit, 5ml
- Temperature : 37 °C
- Size : 10x10
- Observation time : 0h, 2h, 4h, 6h, 12h, 24h

















* **Collagenases** are enzymes that break the peptide bonds in collagen.

Time	0h	2h	4h	6h	12h	24h
Jason membrane	100%	0%	0%	0%	0%	0%
OsseoGuard	100%	93%	56%	47%	0%	0%
Bio-Gide	100%	45%	0%	0%	0%	0%
CollaGuide	100%	67%	12%	0%	0%	0%
Ossix Plus	100%	100%	60%	0%	0%	0%
Colla-BH	100%	85%	72%	56%	21%	0%
Colla-BS	100%	93%	78%	50%	20%	0%

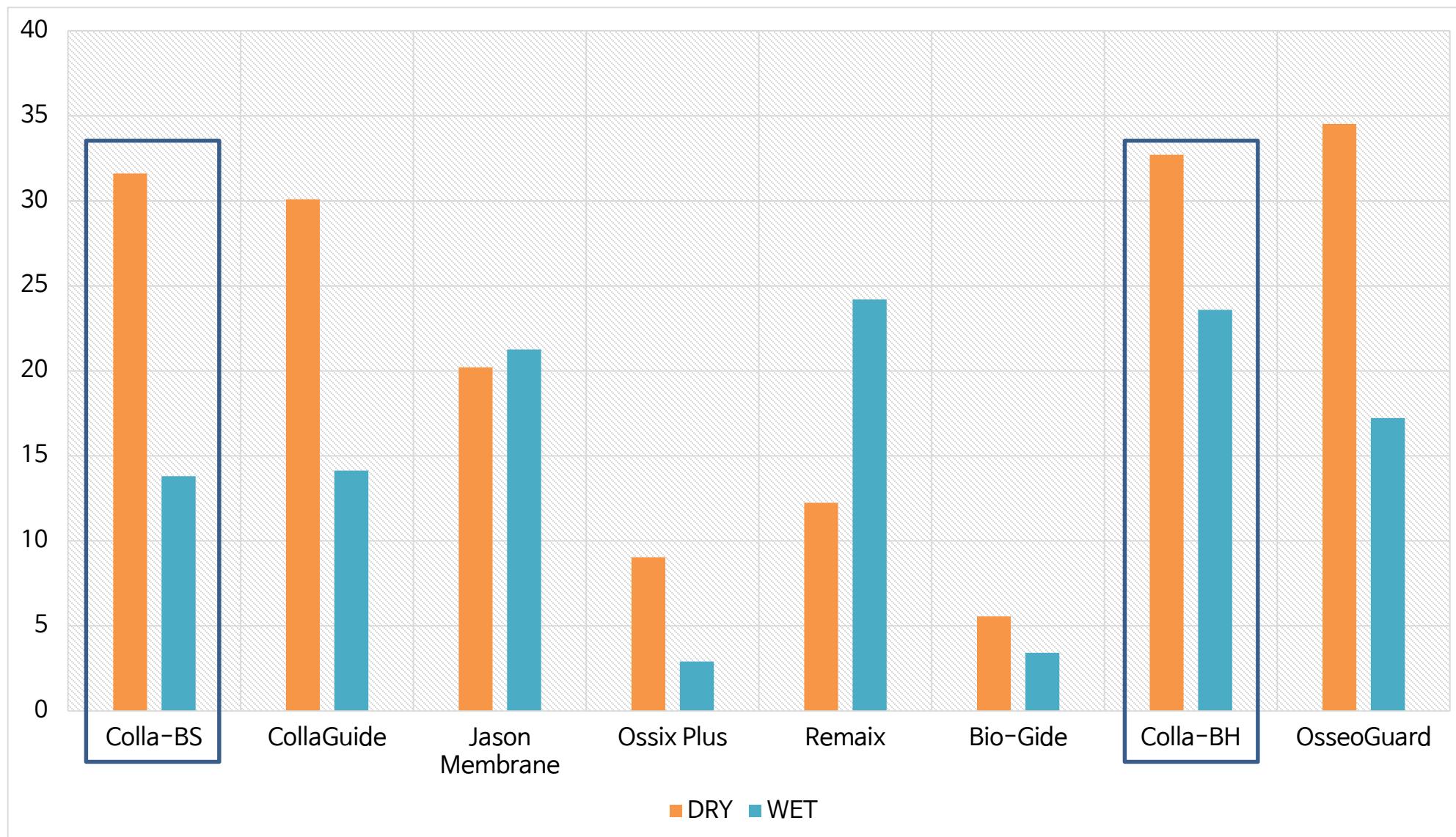
02 Product Comparison Test (Resorption Period)



02 Product Comparison Test (Manipulation)

	Adhesive Property		Elasticity	
Colla-BH		Mid		Low
OsseoGuard		Low		Low
Colla-BS		High		Mid
Ossix Plus		Mid		Mid
CollaGuide		High		Mid
Remaix		High		High
Jason Membrane		High		High
Bio-Gide		High		High

02 Product Comparison Test (Tensile Strength)



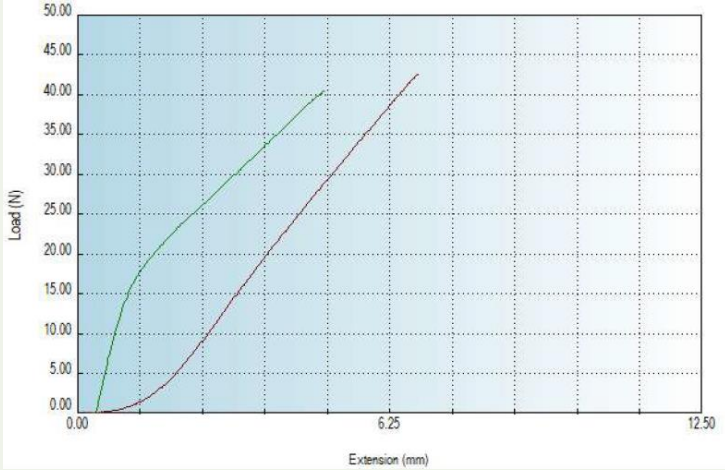
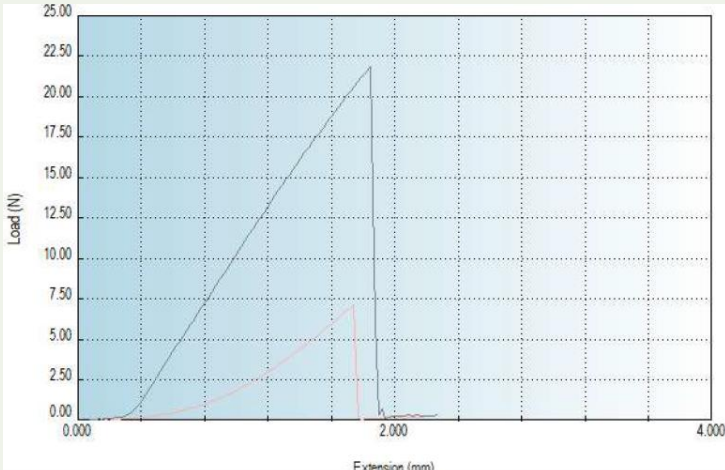
02 Product Comparison Test (Tensile Strength)

Product	Graph	Tensile Strength
Colla-BH	<p>The graph for Colla-BH shows two curves: a green curve for 'Dry' and a red curve for 'Wet'. The y-axis is 'Load (N)' ranging from 0.00 to 80.00 in increments of 8.00. The x-axis is 'Extension (mm)' ranging from 0.000 to 5.000 in increments of 2.500. The 'Dry' curve reaches a peak load of approximately 78.00 N at an extension of about 2.8 mm. The 'Wet' curve reaches a peak load of approximately 56.00 N at an extension of about 2.8 mm.</p>	DRY
		32.72N/mm ²
		WET
		23.59N/mm ²
Colla-BS	<p>The graph for Colla-BS shows two curves: a green curve for 'Dry' and a red curve for 'Wet'. The y-axis is 'Load (N)' ranging from 0.00 to 70.00 in increments of 7.00. The x-axis is 'Extension (mm)' ranging from 0.000 to 4.000 in increments of 2.000. The 'Dry' curve reaches a peak load of approximately 63.00 N at an extension of about 2.5 mm. The 'Wet' curve reaches a peak load of approximately 14.00 N at an extension of about 1.8 mm.</p>	DRY
		31.61N/mm ²
		WET
		13.80N/mm ²

■ Dry

■ Wet

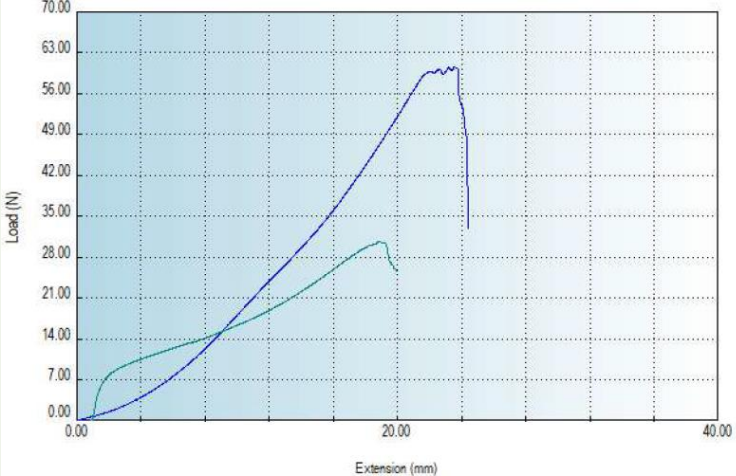
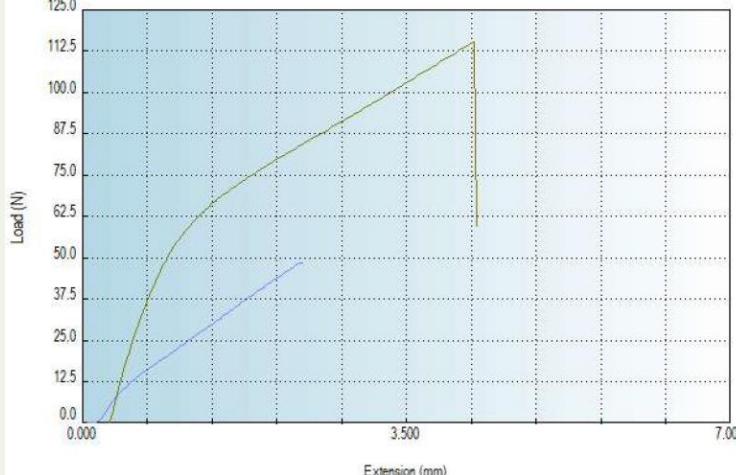
02 Product Comparison Test (Tensile Strength)

Product	Graph	Tensile Strength
Jason Membrane	 <p>The graph for Jason Membrane plots Load (N) on the y-axis (0.00 to 50.00) against Extension (mm) on the x-axis (0.00 to 12.50). A green curve (Dry) shows a tensile strength of 20.2 N/mm², and a red curve (Wet) shows a tensile strength of 21.26 N/mm².</p>	DRY
		20.2N/mm ²
		WET
		21.26N/mm ²
Ossix Plus	 <p>The graph for Ossix Plus plots Load (N) on the y-axis (0.00 to 25.00) against Extension (mm) on the x-axis (0.000 to 4.000). A green curve (Dry) shows a tensile strength of 9.04 N/mm², and a red curve (Wet) shows a tensile strength of 2.91 N/mm².</p>	DRY
		9.04N/mm ²
		WET
		2.91N/mm ²

■ Dry

■ Wet

02 Product Comparison Test (Tensile Strength)

Product	Graph	Tensile Strength
<p>Remaix</p>	 <p>The graph for Remaix shows Load (N) on the y-axis (0.00 to 70.00) and Extension (mm) on the x-axis (0.00 to 40.00). Two curves are shown: a dark blue curve for 'Dry' and a teal curve for 'Wet'. The 'Dry' curve reaches a peak load of approximately 63.00 N at an extension of about 22.00 mm. The 'Wet' curve reaches a peak load of approximately 28.00 N at an extension of about 18.00 mm.</p>	<p>DRY</p>
		<p>12.24N/mm²</p>
		<p>WET</p>
		<p>24.19N/mm²</p>
<p>Osseo Guard</p>	 <p>The graph for Osseo Guard shows Load (N) on the y-axis (0.0 to 125.0) and Extension (mm) on the x-axis (0.000 to 7.000). Two curves are shown: a brown curve for 'Dry' and a blue curve for 'Wet'. The 'Dry' curve reaches a peak load of approximately 112.5 N at an extension of about 4.000 mm. The 'Wet' curve reaches a peak load of approximately 47.5 N at an extension of about 3.500 mm.</p>	<p>DRY</p>
		<p>41.07N/mm²</p>
		<p>WET</p>
		<p>17.23N/mm²</p>

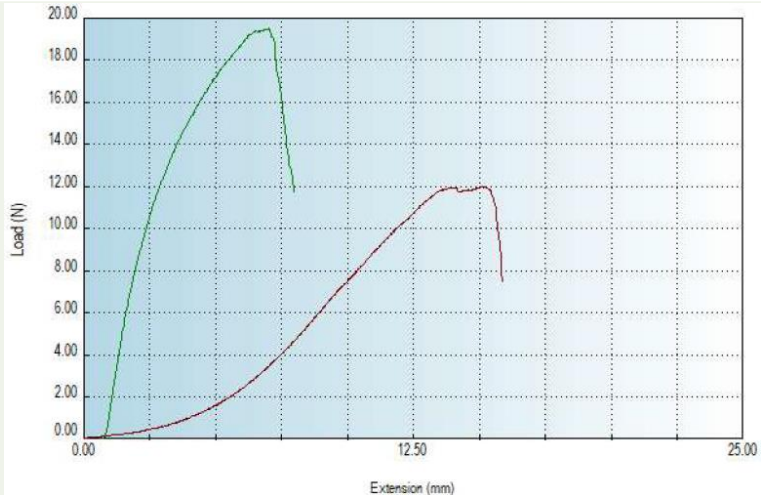
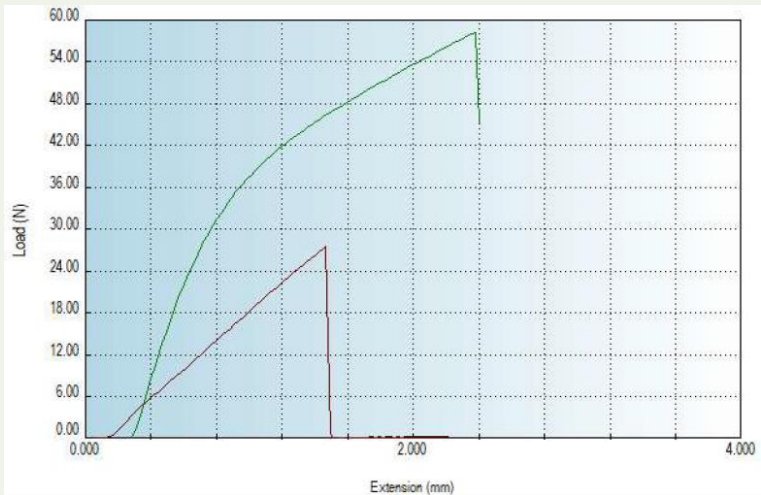
■ Dry

■ Wet

■ Dry

■ Wet

02 Product Comparison Test (Tensile Strength)

Product	Graph	Tensile Strength
Bio-Gide	 <p>The graph for Bio-Gide shows two curves: a green curve for 'Dry' and a red curve for 'Wet'. The y-axis is 'Load (N)' ranging from 0.00 to 20.00. The x-axis is 'Extension (mm)' ranging from 0.00 to 25.00. The 'Dry' curve peaks at approximately 19.00 N at 10.00 mm extension. The 'Wet' curve peaks at approximately 11.50 N at 15.00 mm extension.</p>	DRY
		5.56N/mm ²
		WET
		3.42N/mm ²
CollaGuide	 <p>The graph for CollaGuide shows two curves: a green curve for 'Dry' and a red curve for 'Wet'. The y-axis is 'Load (N)' ranging from 0.00 to 60.00. The x-axis is 'Extension (mm)' ranging from 0.000 to 4.000. The 'Dry' curve peaks at approximately 58.00 N at 2.500 mm extension. The 'Wet' curve peaks at approximately 26.00 N at 1.500 mm extension.</p>	DRY
		30.09N/mm ²
		WET
		14.13N/mm ²

■ Dry

■ Wet

Material	Model name	Type	Size	
Bovine	BH	Hard	10x20 15x20 20x30 30x40	10x10 10x30 25x30 * Order Made
	BS	Soft	10x20 15x20 20x30 30x40	10x10 10x30 25x30 * Order Made

02

Main Products (Bovine Xenograft)

BONE-D

: Xenograft – Bovine



Bone-D BONE-XB
Perfect Natural Mineralized Bone

Material Bovine
Model NAME BONE-XB

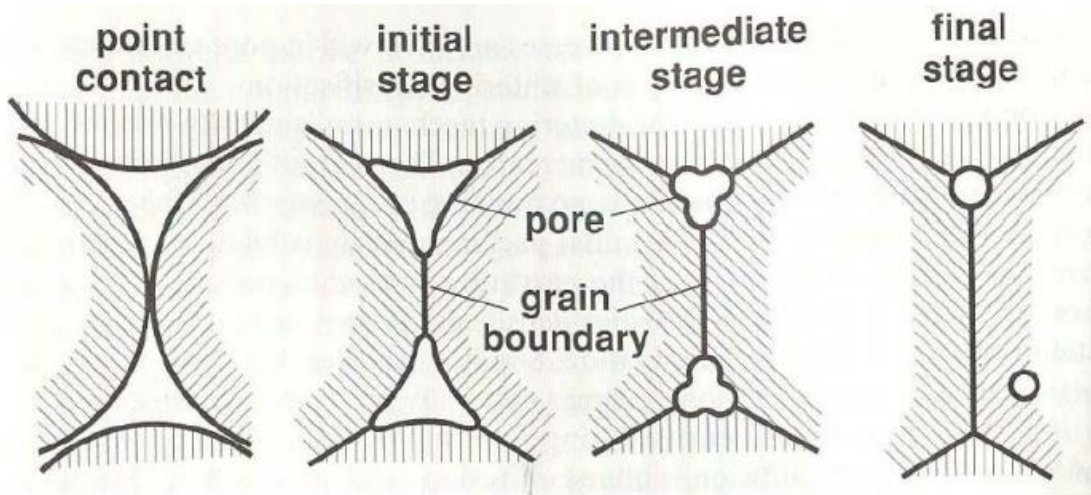
100% Natural Mineralization

Free from Secondary Infection

Stable Volume Maintenance

02 Main Products (Bovine Xenograft)

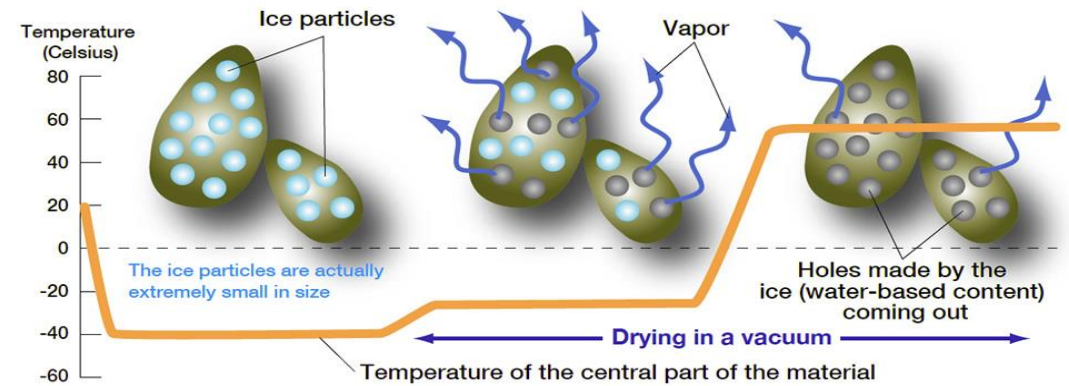
〈 Sintering Method〉



- Manufacturing : Sintering under high temperature
- Characteristic **1. Completely remove organic body**
2. Getting sufficient strength
- Products which manufactured by sintering
: **Bone-D (MedPark)**, **Bio-Oss (Geistlich)**

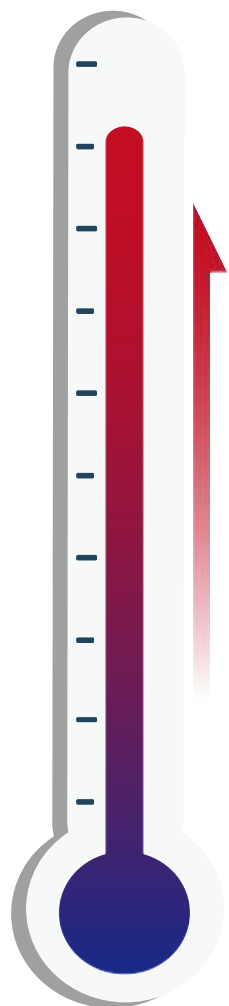
〈 Vacuum Freeze Drying Method〉

■ Process of Vacuum Freeze Drying



- Manufacturing : Vacuum freeze drying
- Characteristic : Maintaining suitable volume
- Products which manufactured by vacuum freeze drying
: The majority of manufacturers

02 Main Products (Bovine Xenograft)



High Temperature

- 1. Strength : **High**
- 2. Porosity: Relatively low



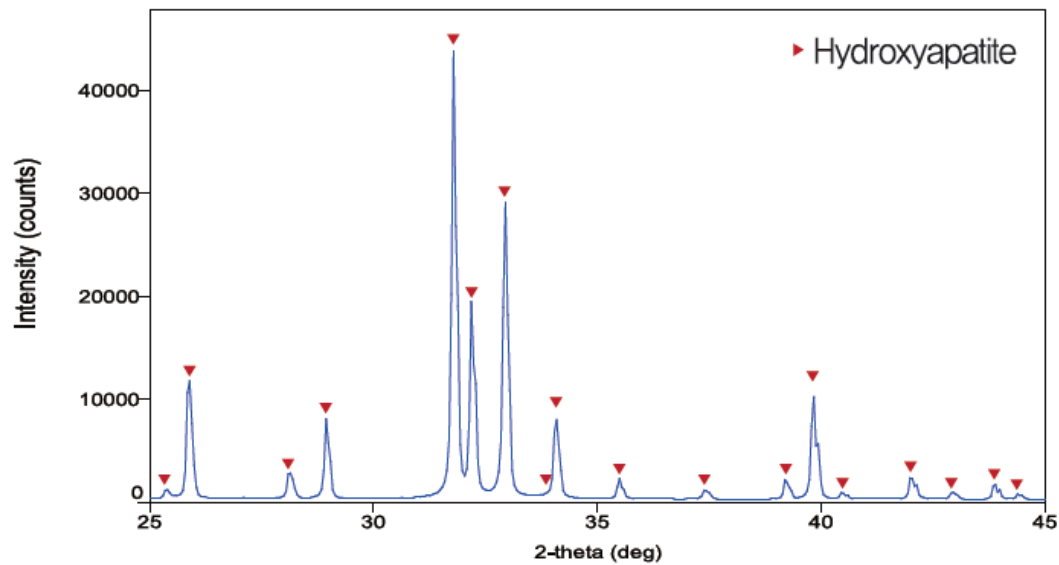
**MedPark's
Sintering
Technology**



**Strength ↑
Porosity ↑
= BONE-XB**

We could secure strength, porosity and safety

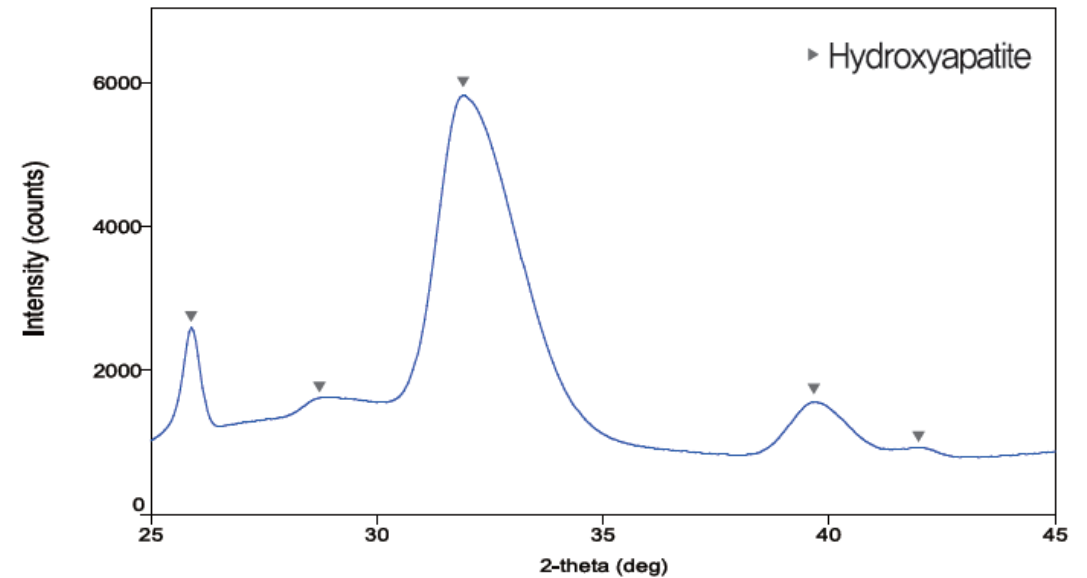
* Manufacturing by sintering (Sintering process)



<BONE -XB XRD>

MedPark's Sintering

→ Showing sharp HA peak on XRD
= high structure stability



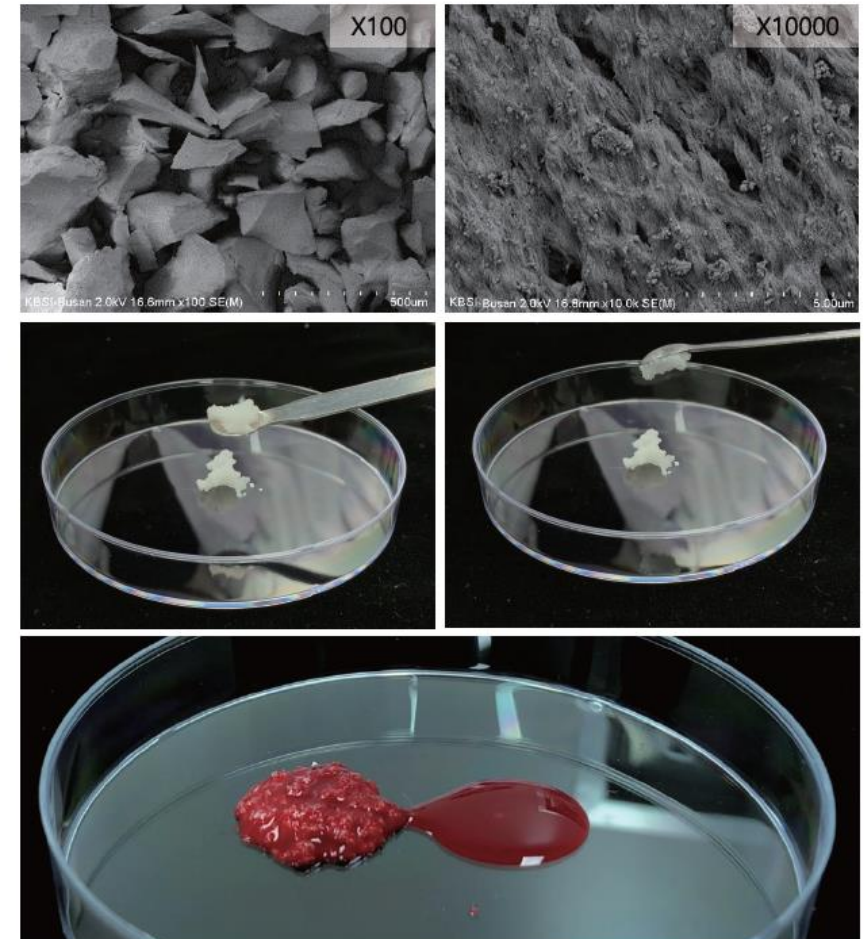
< Competitor's XRD >

→ More gradual HA peak compare to BONE-XB
= lower structure stability

02 Main Products (Bovine Xenograft)

Characteristics

- **Excellent Pore Structure**
 - Manufactured by Medpark's sintering technology
 - Securing strength / porosity
 - Extensive internal area
 - Maintenance of ideal volume
- **Easy Manipulation**
 - Faster absorption by blood and saline for its porosity
 - Applicable to various indication such as Socket Preservation, Sinus Lifts, Periodontal Defects and Ridge Augmentation
- **High Wettability**
 - Stimulating new bone formation with great hydration with blood
 - Osteoblast in blood helps the new bone formation



Material	Model name	Type	Particle Size	Weight (Volume)
Bovine	MBXB-P	Powder	0.2~1.0mm	0.15g (0.3cc) 0.25g (0.5cc) 0.5g (1.0cc) 1.0g (2.0cc)
	MBXB-C	Chip	1.0~2.0mm	0.25g (0.75cc) 0.5g (1.5cc) 1.0g (3.0cc) 2.0g (6.0cc)

02

Main Products (Porcine Xenograft)

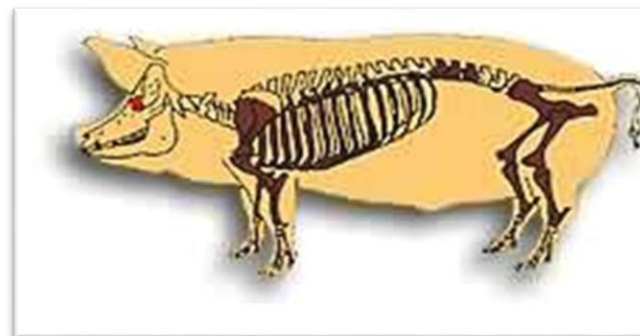
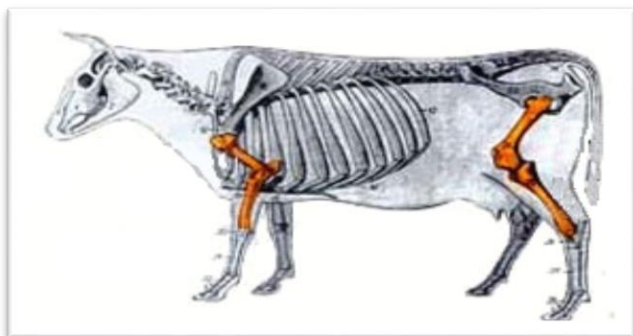
BONE-D**: Xenograft – Porcine****Bone-D** BONE-XP

Perfect Natural Mineralized Bone

Material Porcine
Model NAME BONE-XP

Safety - BSE Free**High Biocompatibility****Natural β -TCP**

02 Main Products (Porcine Xenograft)



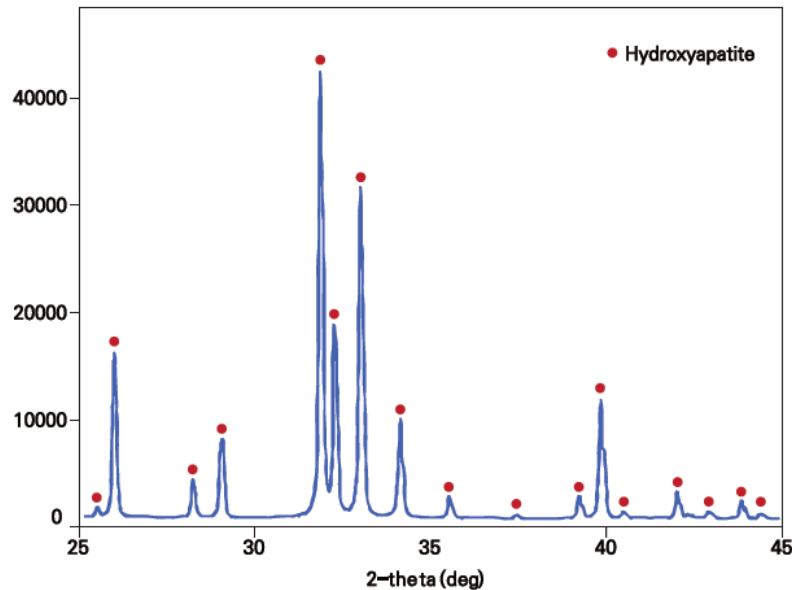
Classification	Bovine Bone	Human Bone	Porcine Bone
Young's module (MPa)	100.00 ± 25.70	Proximal= ~450 Femur =~400	346.33 ± 83.15
Ca/P ratio	1.92	1.68 ~ 1.71	1.7
β-TCP	Absence	Exist	Controllable
Infection Risk	BSE	Cross Infection	N/A

Phase name	Content(%)
	Porcine
Hydroxylapatite	98.5
CaO	1.21
b-TCP	0.25
a-TCP	0.04
sum	100
Ca(atomic ratio)	1.0061
P(atomic ratio)	0.5909
Ca/P ratio	1.7027
HA	0.9975
b-TCP	0.0025

-> Porcine bone is more similar to human bone than bovine's

< Components of porcine bone detected from XRD >

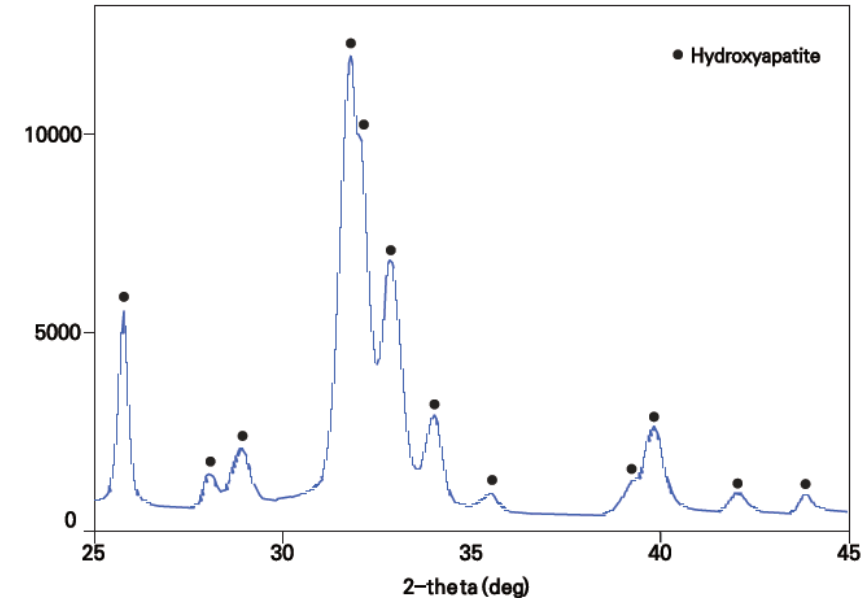
02 Main Products (Porcine Xenograft)



<BONE-XP XRD>

Main component: Hydroxyapatite(HA)
Natural β -tcp has remained

- Heating treatment under high temperature
→ showing sharp HA peak on XRD
= High percentage of HA

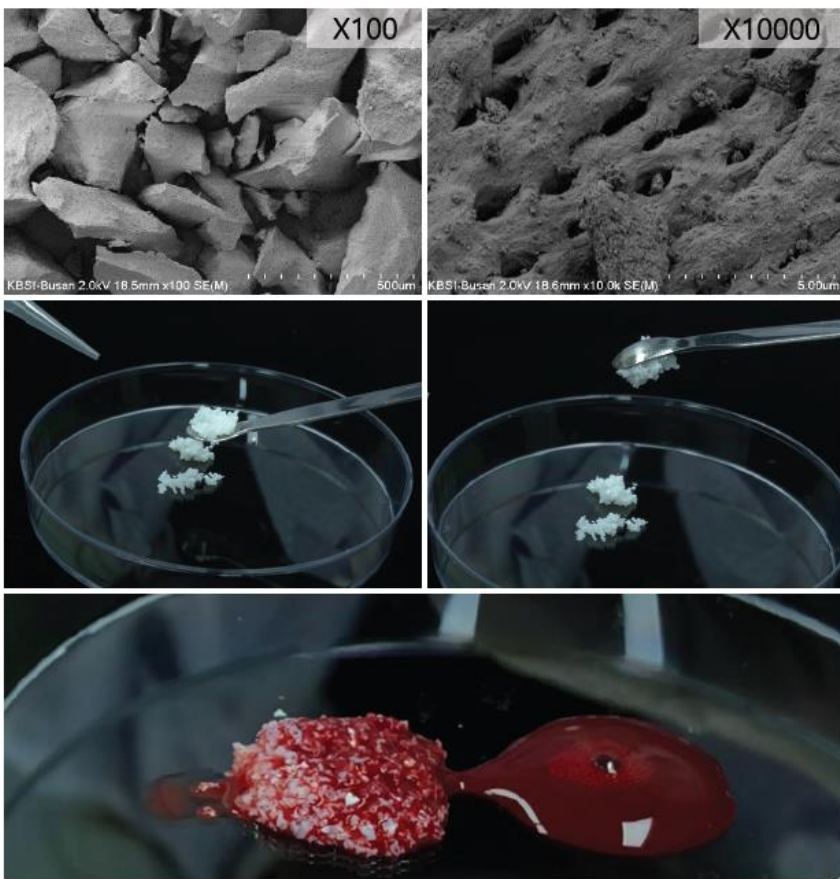


<Competitor's XRD>

Unclear component

- Common heating treatment
→ more gradual HA peak compare to Bone-XP =
lower percentage of HA

02 Main Products (Bovine Xenograft)



● Excellent Pore Structure

- Rough surface of microstructure makes osteoblast stick to the surface easily
- Reticular structure similar to human cancellous bone secures sufficient space for growing new bone

● Easy Manipulation

- High wettability makes itself mix well with saline and blood
- Bone-XP is not easily scattered during the sinus lift procedure

● High Wettability

- Stimulating new bone formation with great hydration with blood
- Osteoblast in blood helps the new bone formation

Material	Model name	Type	Particle Size	Weight
Porcine	MBXP-P	Powder	0.2~1.0mm	0.15g (0.36cc) 0.25g (0.6cc) 0.5g (1.2cc) 1.0g (2.4cc)
	MBXP-C	Chip	1.0~2.0mm	0.25g (0.9cc) 0.5g (1.8cc) 1.0g (3.6cc) 2.0g (7.2cc)

02 Product Comparison Test Result

		Bio-Oss	Bone-XP	Bone-XB	Cerabone
Result	Color	White	White	White	Ivory
	Volume	100%	127% \leq	120% \leq	51% \leq
	Handling	High	High	High	Normal
	Absorption	High	High	High	Normal
	Cohesiveness	Normal	High	High	Normal

- Bio-oss 0.25g - 0.58cc
- Bone-XP 0.25g - 0.74cc
- Bone-XB 0.25g - 0.70cc
- Cerabone 0.25g - 0.30cc

02 Main Products (Allograft)

Bone D-A Plus

: Allograft



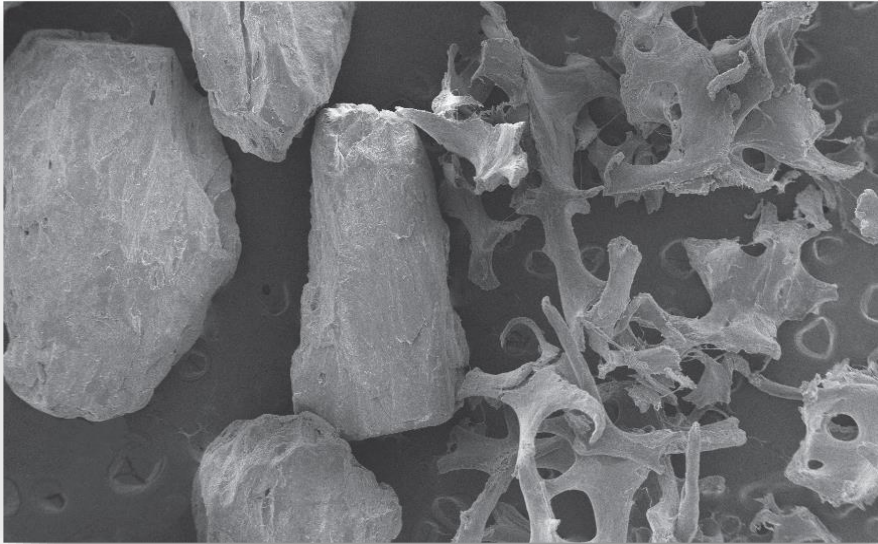
Model NAME Bone D-A Plus

FDBA (Freeze Dried Bone Allograft)

Cortical 50% Cancellous 50%

Syringe Type

02 Main Products (Allograft)

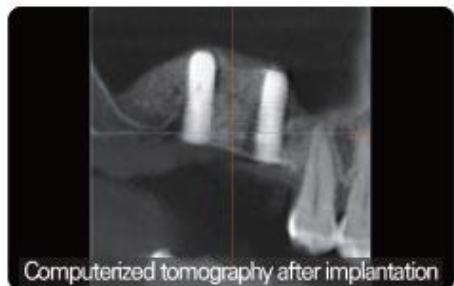
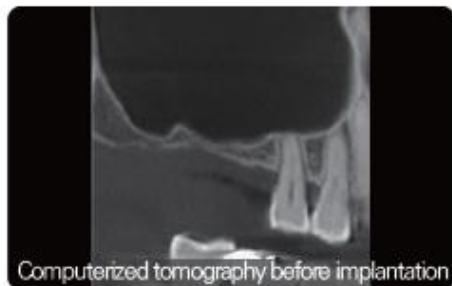


The optimum combination of 50% Cortical and 50% Cancellous contributes the perfect concept of Osteoinduction and Osteoconduction

- Slow absorption of 50% of the Cortical Powder helps to preserve spaces for grafted areas during the bone regeneration.
- 50% of the Cancellous Powder with Mineral accelerates cellular adhesiveness, bone remodeling and revascularization.

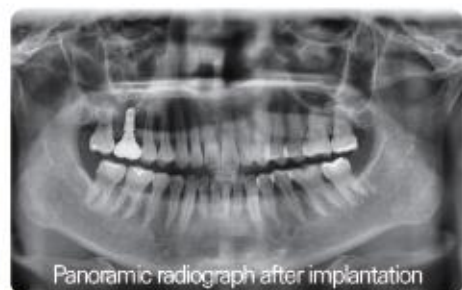
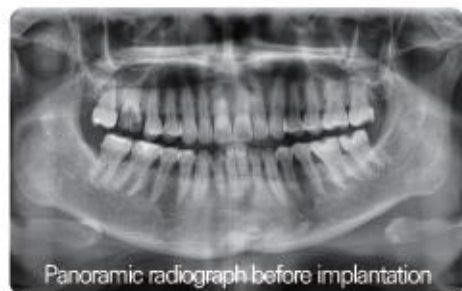
02 Main Products (Allograft)

+ Clinical Case I



02 Main Products (Allograft)

+ Clinical Case II



Product	Model name	Type	Weight
Bone D-A Plus	BP101	Powder (Syringe Type)	0.3g (0.5cc)
	BP102		0.6g (1.0cc)