# Regevan<sup>®</sup> fill Fine Rhino<sup>®</sup> fill Premium





## Tentech Item



Product introduction

# Regevan<sup>®</sup> fill Fine Rhino<sup>®</sup> fill Premium

For temporary improvement of facial wrinkles, it has three products: Regevan Fill, and Rhino Fill which were developed using world-class MDM technology, and contains lidocaine to reduce pain during treatment.





# Key technologies for manufacturing hyaluronic acid filler

Regevan fill Rhino fill

Class	Tentech Inc.	G*	A*
Country	Korea	Switzerland	Ireland
Brand	Regevan <sup>®</sup> fill <sub>Fine</sub> Rhino <sup>®</sup> fill <sub>Premium</sub>	Re*	Ju*
Core Tech.	MDM	NASHA	Hyla-cross
Phase	Mono Phasic	Bi Phasic	Mono Phasic
Remark	Recognized worldwide for its unique core technology	[How most filler companies are applied] • Cross-link : Short cross-link using BDDE	



	Regevan <sup>®</sup> fill Rhino <sup>®</sup> fill Fine Rhino <sup>®</sup> fill	Normal Filler	
Cross Linking Agent	<b>DVS</b> (Divinyl Sulfone)	<b>BDDE</b> (1,4-Butanediol diglycidyl ether)	
Structure	$H_2C$ $O$ $CH_2$ $H_2$		
Mass (Dalton)	118.15	202.25	
Molecule Length (Ratio)	1	3	
Number of atoms forming a bridge between HA molecules	5	14 (Possibility of surplus atoms $\uparrow$ )	
Characteristics	Difficult process / Densely cross-linked	Simple process / Loosely cross-linked	
Cross-link Completion	Completely cross-linked	'Pendant' phenomenon caused by incomplete crosslinking	
Cross-link Illustration		and the second s	



### **PENDANT** Phenomenon in Filler Products Using BDDE as a Crosslinking agent

### Determination of modification degree in BDDE-modified hyaluronic acid hydrogel be SEC/MS

Biao Yang\*a, Weuping Guo\*a,b, Hengchang Zang\*a, Jianjian Liu\*b a School of Pharmaceutical Science, Shandong University, Jinan, China b Bloomage Freda Biopharm Co, Ltd, Jinan, China



Figure 2. When dissolved in water, hyaluronic acid (HA) behaves as a fluid, with excellent biocompatibility but poor mechanical properties (A). Modification on HA moleculese by cross-linking improves mechanical properties by creating gels that have a firmer structure and ar able to resist degradation (B). Modification does not necessarily cross-link HA to other HA molecules, resulting in a pendant cross-linker (C). Such structures often result in osfter gels.

### ORIGINAL ARTICLES Comparative Physical Properties of Hyaluronic Acid Dermal Fillers

EFFERY KABLIK, \*GARY D. MONTHEIT, MD, LIPING YU, PHD, GRACE CHANG, AND JULIA GERSHKOVICH

### Many BDDE technology imitations face Pendant challenges



### HA Filler Physical Properties Comparison (Monophasic vs Biphasic)

Туре	MONO PHASIC	BI PHASIC
Illustration		
Physical Property	Type 1 HA (GEL) Type 2 HA (GEL + LIQUID)	
Product Characteristics	<ul> <li>High viscosity</li> <li>Low elasticity</li> </ul>	<ul> <li>Low viscosity</li> <li>High elasticity</li> </ul>
Example	Regevan Fill, Rhino Fill, Fine Fill, Juvederm, Neuramis, Chaeum	Restylane, Yvoire, Cutegel



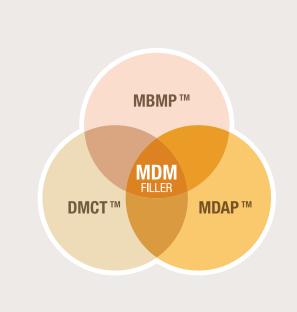
Sortation	MDM HA Filler	General HA Filler	Chemical Filler
Persistence	0	Х	0
MOLDING ability	0	Х	0
Viscoelasticity	0	Х	0
Safety	0	0	Х
Biocompatibility	0	0	Х
Biodegradability	0	0	Х

# MDM Filler<sup>™</sup> is Globally recognized for its safety and efficacy, and it lasts longer with its excellent molding power. Safety • Long Lasting • Excellent Molding • Immediate Effect



# MDM Filler<sup>™</sup>

# Regevan fill Rhino fill



### **MBMT**™

Micro Bead Monophasic Technology Integrated Microbead to manufacture Mono-phasic fillers

Adjustment of viscoelasticity according to the purpose of use



#### **DMCT**<sup>™</sup>

Divinyl Sulfone Multi-Crosslink Technology Fully cross-linked with Multi-cross-link using DVS

Excellent viscoelasticity and molding power



### **MDAP**<sup>™</sup>

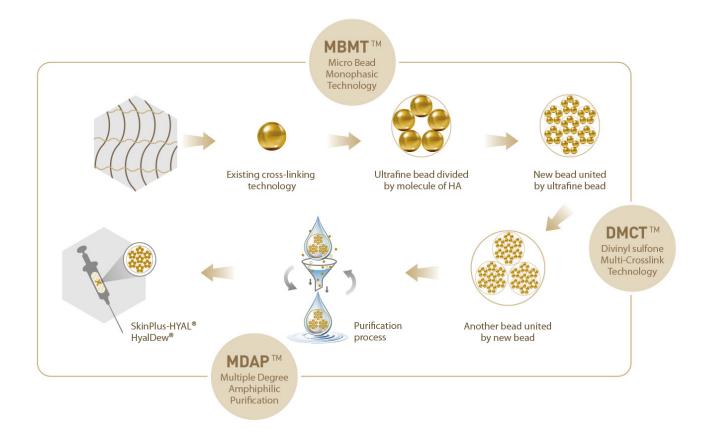
Multiple Degree Amphiphilic Purification Application of Multi-Step Refining Technology

Manufacturing pure and secure products





# MDM Filler<sup>™</sup> Manufacturing Method





# Specification

Product	Regevan <sup>®</sup> fill Fine	Rhino <sup>®</sup> fill Premium	
Image	Regevan fill	Rhino fill Premium	
Category	Medical Device		
HA Concentration	20mg/mL		
Viscosity	***	****	
Volume	1mL X 1Syringe		
Lidocaine	0.3%		
Cross-link Completion	DVS		
Areas	All other areas	Nose	



# Regevan<sup>®</sup> fill Rhino<sup>®</sup> fill Fine Premium

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