



Solution Provider

Acrylic Impact Modifier Introduction

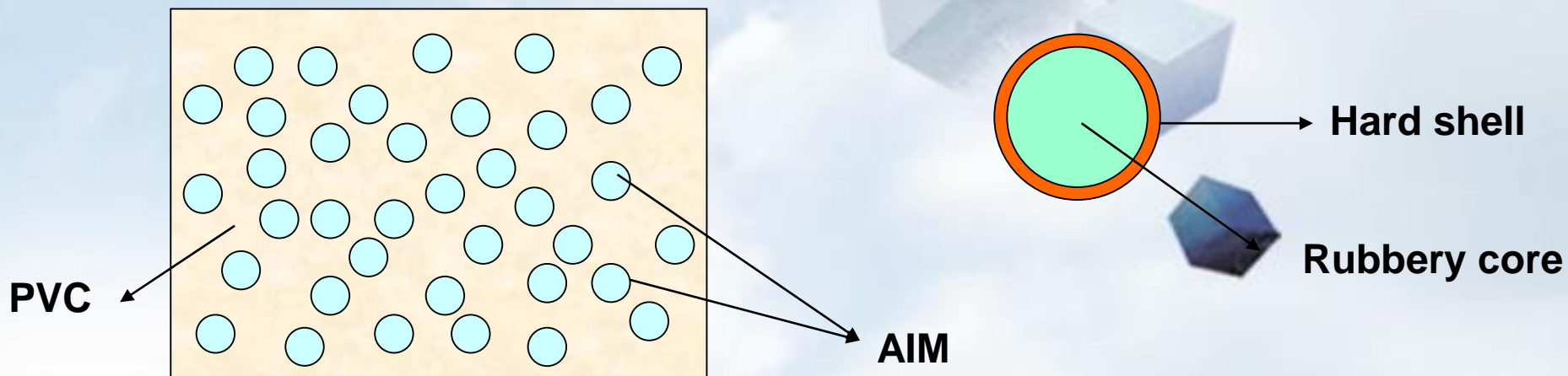
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1. Impact theory of AIM

AIM distribution in PVC

AIM particle



AIM is a kind of core-shell structure polymer. when PVC suffers external impact The rubber elastomers core can produce shear band and silver craze to transfer impact energy to heat, so AIM can greatly improve the impact-strength.



2. Influence factors of AIM impact strength

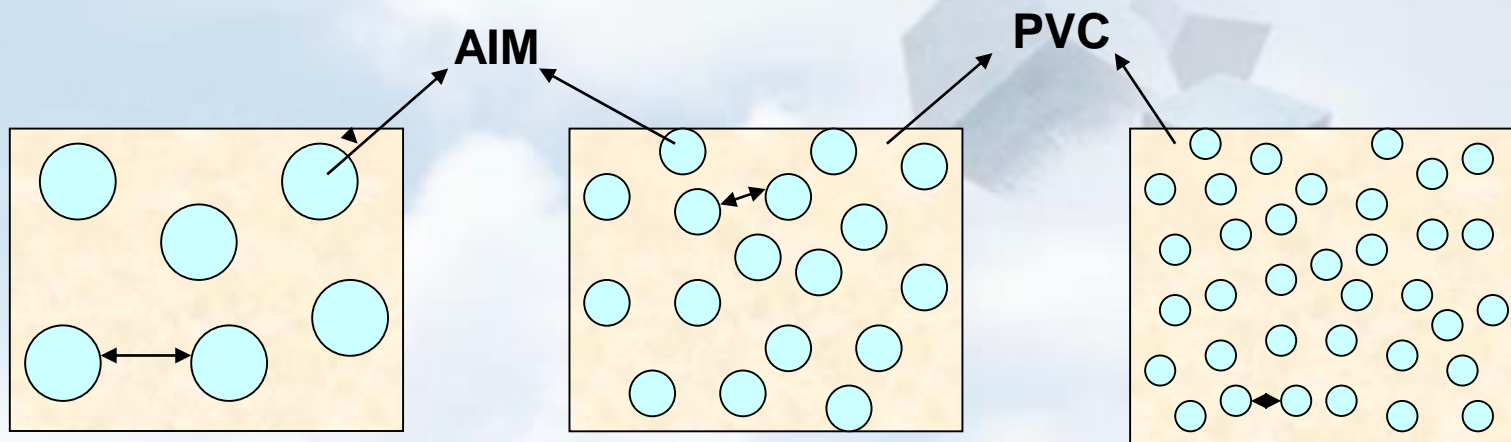
★ Particle size

★ Glass transition temperature (T_g)

★ Core-shell ratio



Influence of particle size



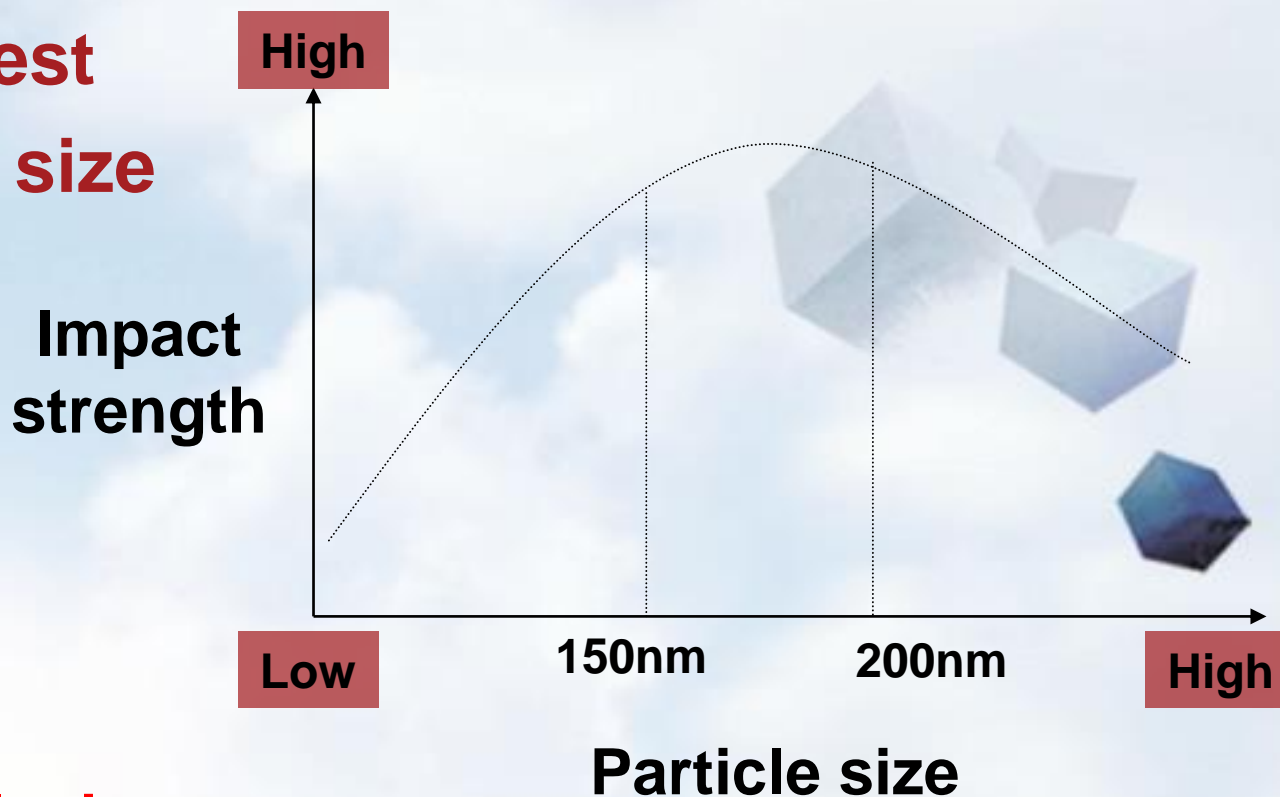
Easy to produce silver craze.
Hard to produce shear band.

Easy to produce silver craze.
Easy to produce shear band.

Hard to produce silver craze.
Hard to produce shear band.



**The best
particle size**

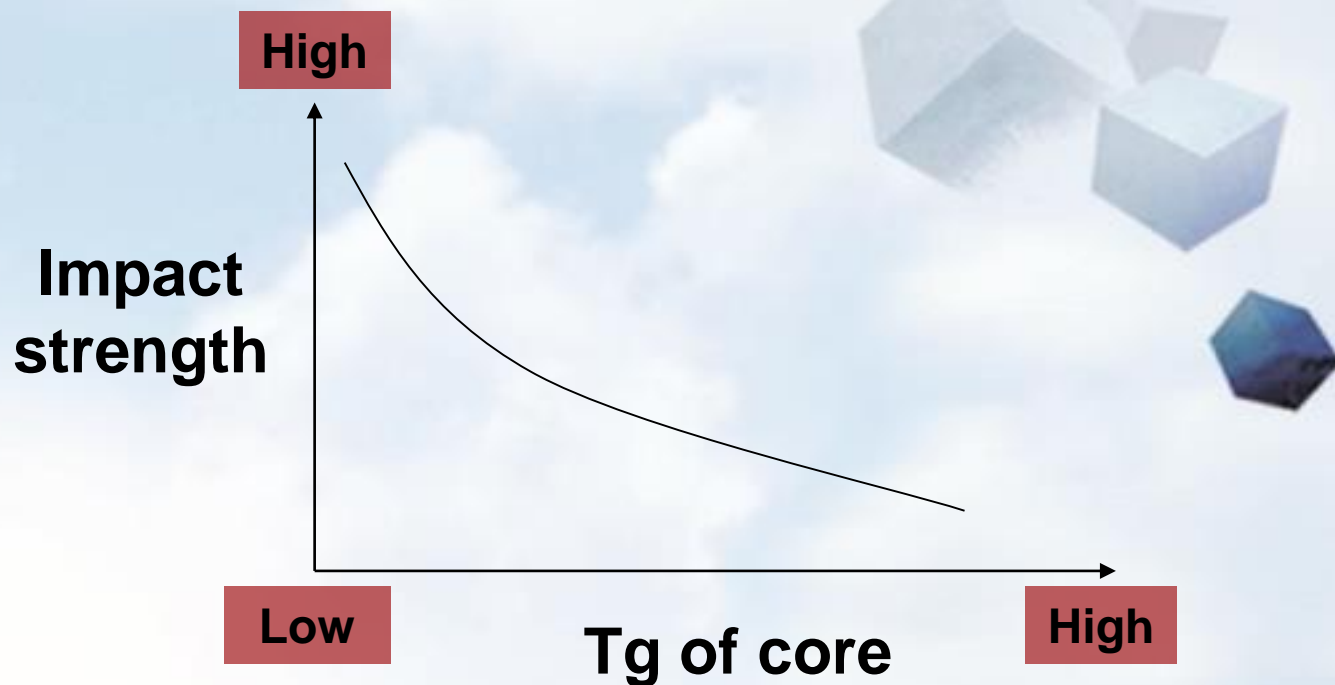


Conclusion:

Adding 5phr AIM in the formulation, optimum particle size is 150-200nm and impact-strength is the highest.



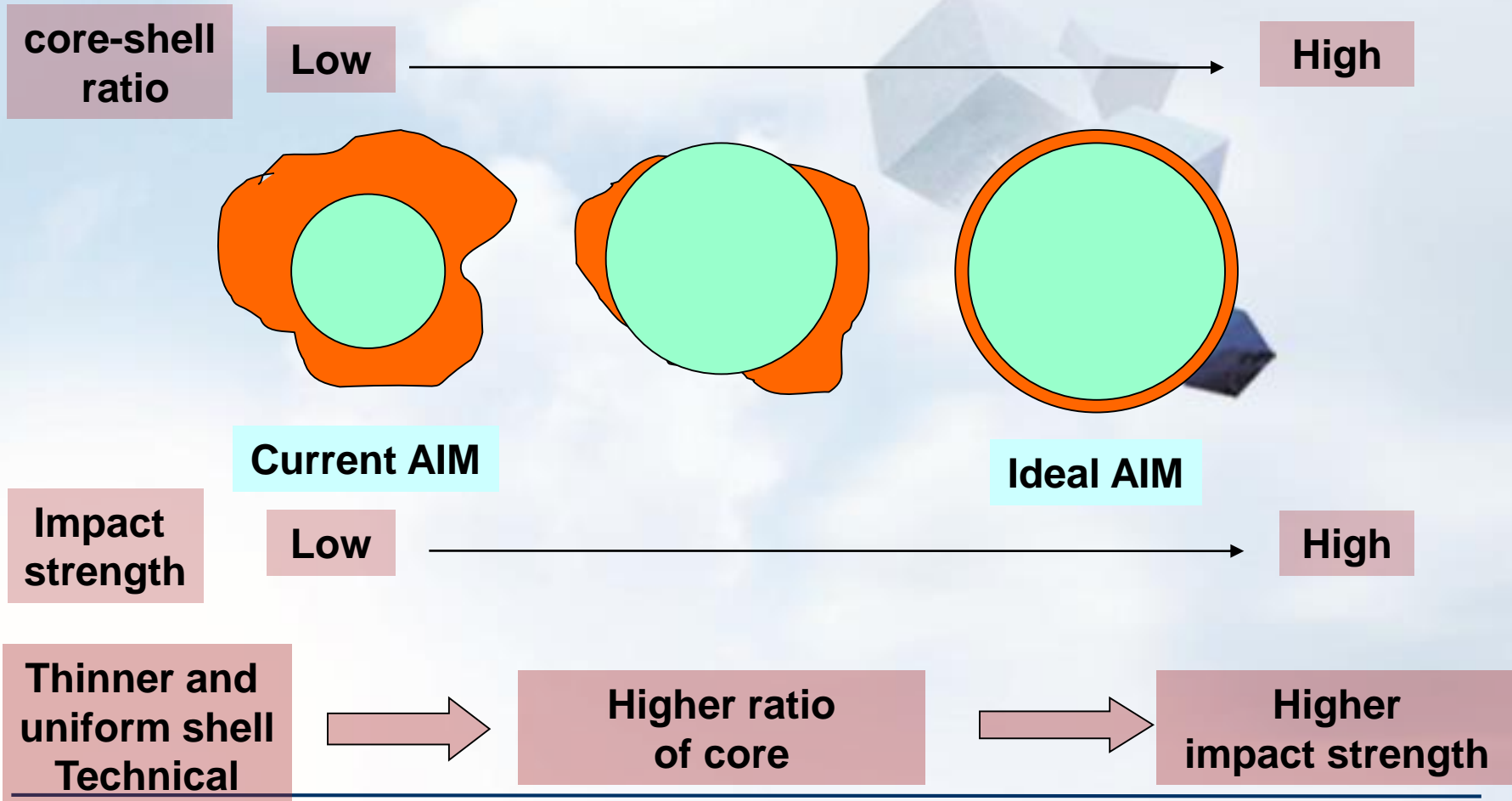
★ **Influence of glass transition temperature (Tg)**



Conclusion: Lower Tg of core , higher impact-strength.



Influence of core-shell ratio





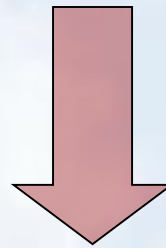
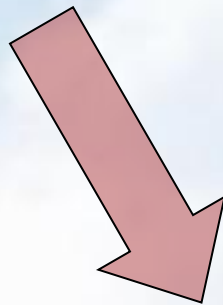
Our solution for higher impact strength

AIM

Optimum particle size
(150-200nm when
adding 5phr)

Low Tg

High Core ratio
(Donglin 92%-94%,
General 85%)



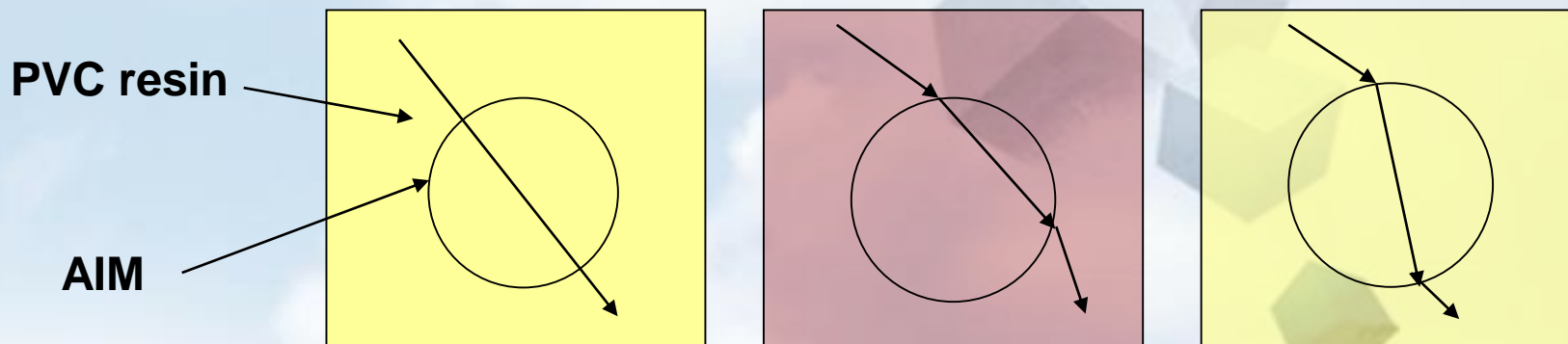
High impact-strength AIM



3. Transparency mechanism of transparent AIM

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Ingredients	PVC	Butyl acrylate	Styrene	Methyl Methacrylate
Refractive index	1.54	1.42	1.60	1.41



Transparence

Good

Bad

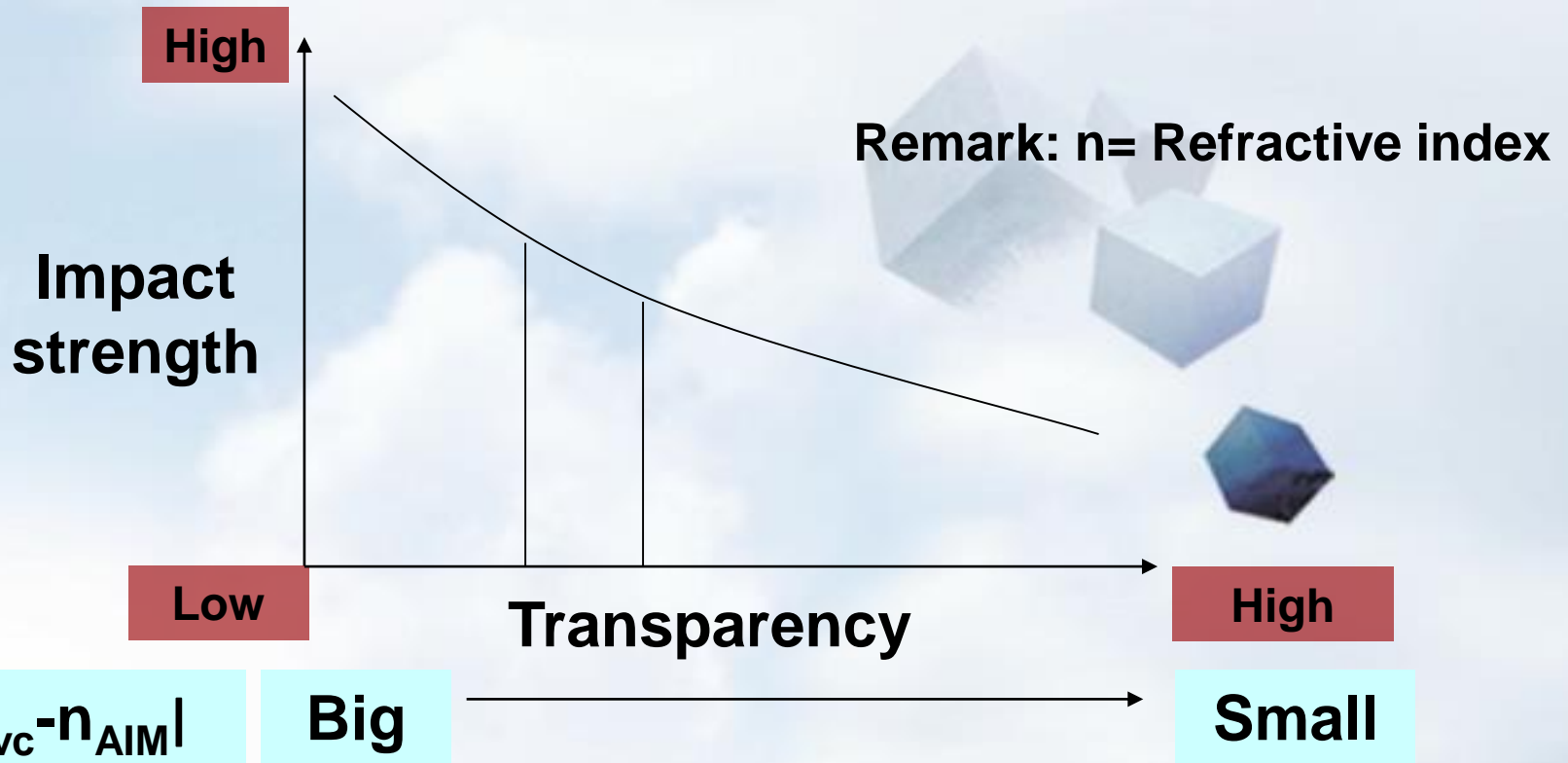
The difference of refractive index between PVC and AIM

Small

Big

Conclusion: Add Styrene with high refractive index into AIM, adjust the refractive index of AIM, and make it much close to PVC, The transparency will be much better.

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When the refractive index of AIM is the same with PVC, the transparency is the best. But Adding Styrene will increase the Tg of AIM, and decrease the impact-strength. RIKE finally obtain best balance between transparency and impact-strength by using unique technology.



4. RIKE's AIM benefits

Opaque AIM

- ★ Excellent impact-strength
- ★ Excellent weather-resistance
- ★ Best balance of impact-strength and glossiness
- ★ Product type:
DL-50(Equivalent FM-50)
DL-55 super high impact

Transparent AIM

- ★ Best balance of impact-strength and transparency
- ★ Excellent weather-resistance
- ★ Product type: DL-80
Equivalent HIA-80



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Think of Service, Think of Donglin Chem.



Thank you !

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