



Retardan®

Retarders for Gypsum Binders



Technology



Tricosal®

Gypsum and Dry Mortar Additives

Product Selection Slide



		Superplasticizer / High-Range Water Reducer						Retarder				
		Powder				Liquid	Powder			Liquid		
		Sika® ViscoCrete®						Retardan®				
		111 P	120 P	125 P	225 P	425 P	G-2	P	704 D	GK	L	200 L
Application	Binder											
Gypsum boards, partition panels, ceiling tiles, gypsum building elements & blocks	β-hemihydrate						++	+			+	++
Building plaster, render, stucco, bonding/filling compound, molding/dental/medical plaster	α/β-hemihydrate				++	+	++	++	+	+	+	++
Floor screeds, self-leveling screeds & underlayments	α-hemihydrate				++	+	++	++	+	+	+	++
	natural anhydrite			+	+	++		++	+	+	+	+
	thermal anhydrite			+	+	++		++	+	+	+	+
	synthetic anhydrite			+	+	++		++	+	+	+	+
	cement (OPC)	++	++	++	++	+						
	ternary compound	+	+	++	++	++		++	+	+		
Grouts, non-shrink grouts, repair mortars, tile adhesives	cement (OPC)	++	++	++	++	+						
	ternary compound	+	+	++	++	++		++	+	+		

+ suitable ++ recommended

Remark: Combinations of products may be targeting for your specific application. Testing is required to evaluate the additive performance for your specific conditions. For more information and assistance please contact our technical service.



Retardan® P Product Family

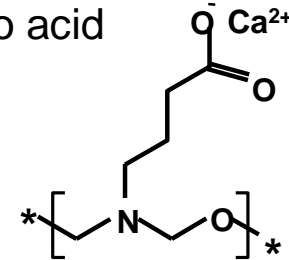
Characteristics and Advantages

Retardan® P: Ca-salt of N-polyoxy-methylene-amino acid
(pure active substance)

Retardan® 704 D: 25 % ASC in inert filler

Retardan® GK: 11 % ASC in inert filler

Retardan® L: aqueous solution (40 % ASC)



à **Proved excellent performance** in the adjustment of setting time and workability of a variety of calcium sulfate binder types, also in combination with other additives like plasticizers, celluloses and dispersion powders.

- ü Used in the gypsum industry since decades
- ü **Very efficient** retarder
- ü Industrial production ensures **high and uniform additive quality**
- ü No.1 retarder for **high quality gypsum products**

Tricosal®

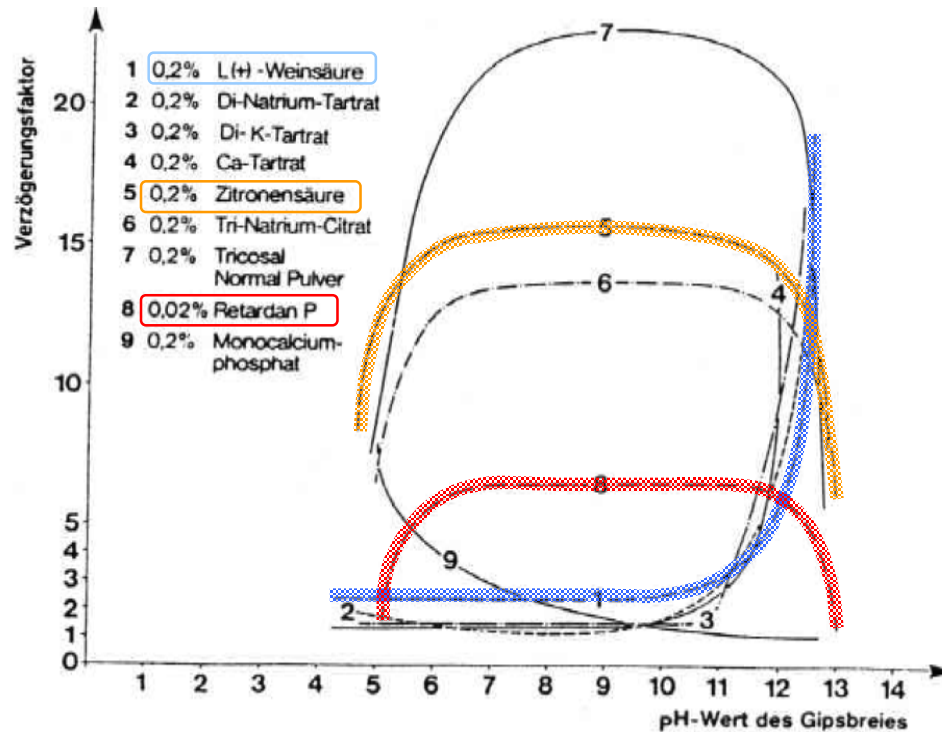


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Retardan® P Product Family

Product Performance

Tricosal®



- ü Very low dosage
- ü High retarding action over a wide pH range
- ü High tolerance w.r.t. changes of pH value

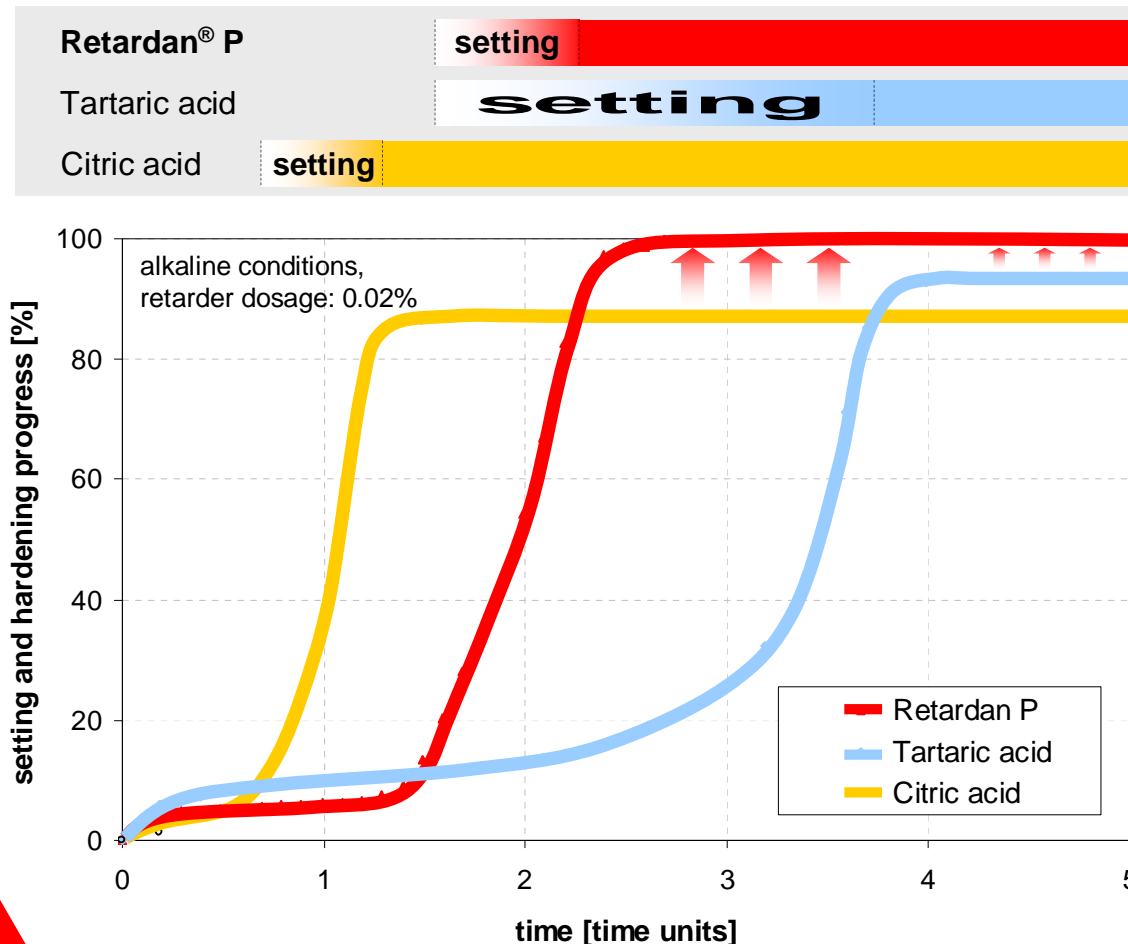
Relationship between retarding action and pH value of the binder slurry

Source: Th. Mallon, ZKG No.6/1988

Retardan® P Product Family

Product Performance

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- ü Well-defined retardation:
displacement of the
beginning of hydration
without intensity loss
- ü No inhibition of crystal
growth (unlike fruit acids)
- ü Fast strength development
& higher final strength

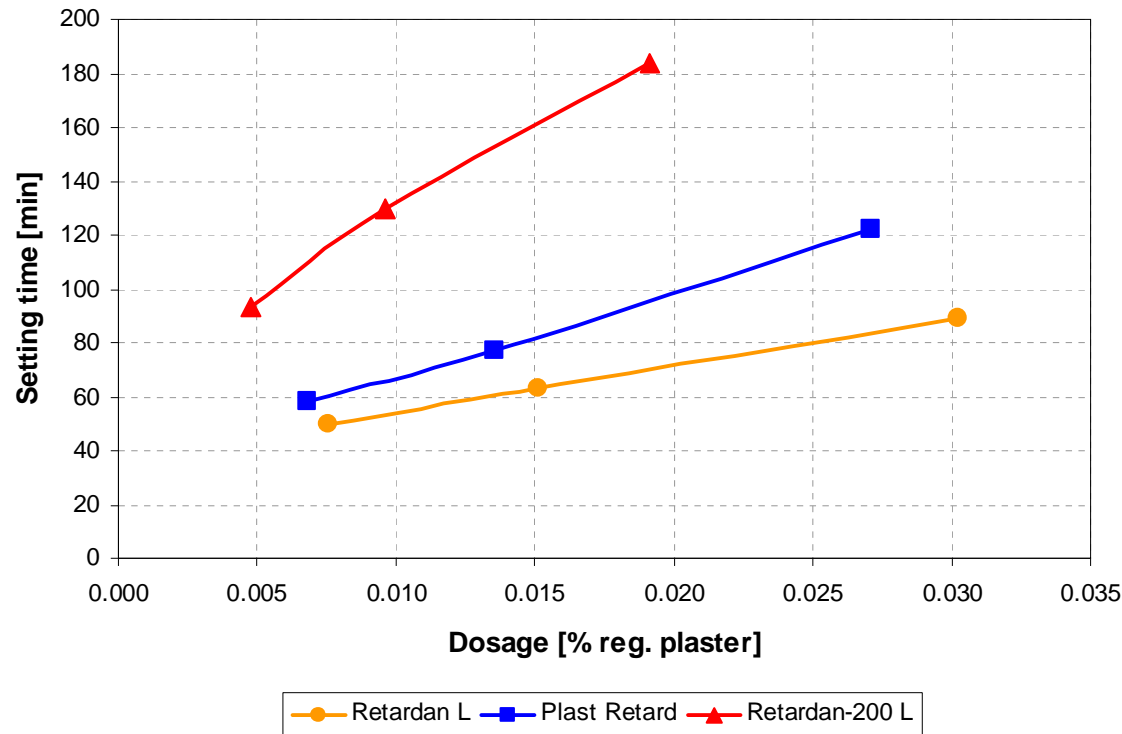
*Influence of different retarders
on the process of setting and
hardening of the binder slurry*

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New Product: Retardan®-200 L

Product Performance

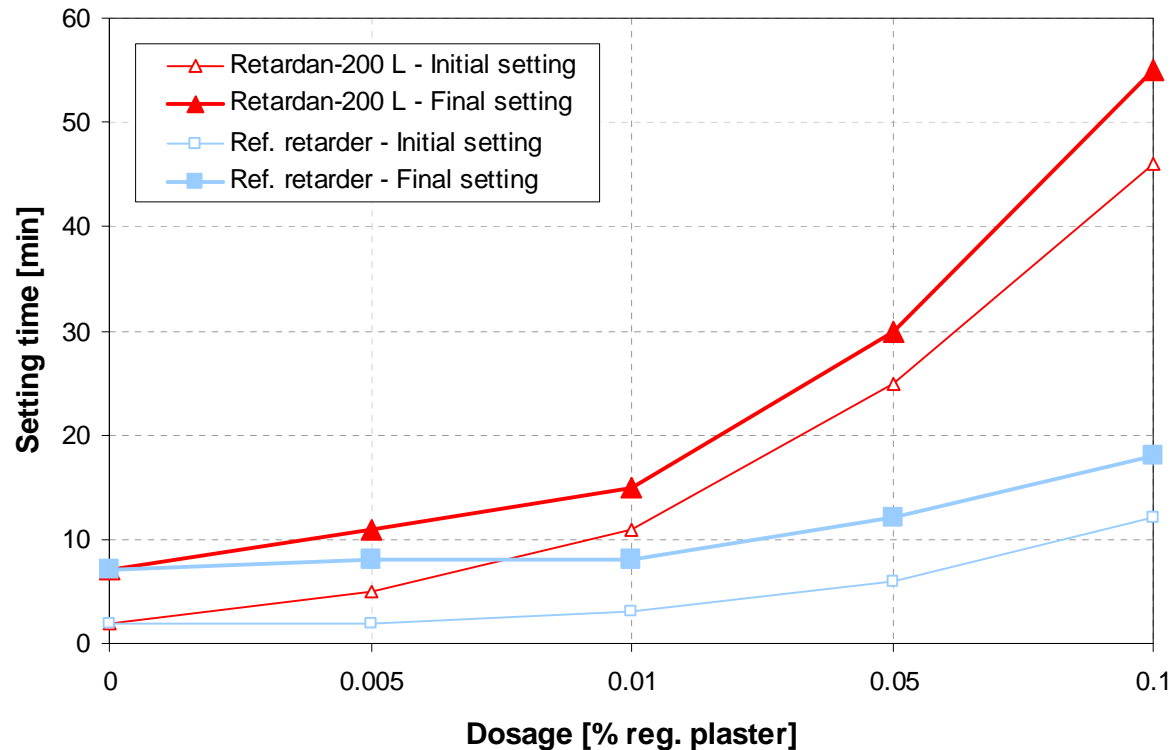


*Positioning regarding setting time of plaster of Paris:
Retardan-200 L vs. Retardan L and a competitive retarder*

- ü New high-performance gypsum retarder based on **modified amino acid**
- ü For **setting time control** of gypsum binders, i.e. during **gypsum board production**
- ü Significant **dosage reduction** i.e. vs. protein hydrolysates
- ü **Displacement of the beginning of hydration** without intensity loss
- ü No inhibition of crystal growth (unlike fruit acids) **à fast strength development** without final strength loss

New Product: Retardan[®]-200 L

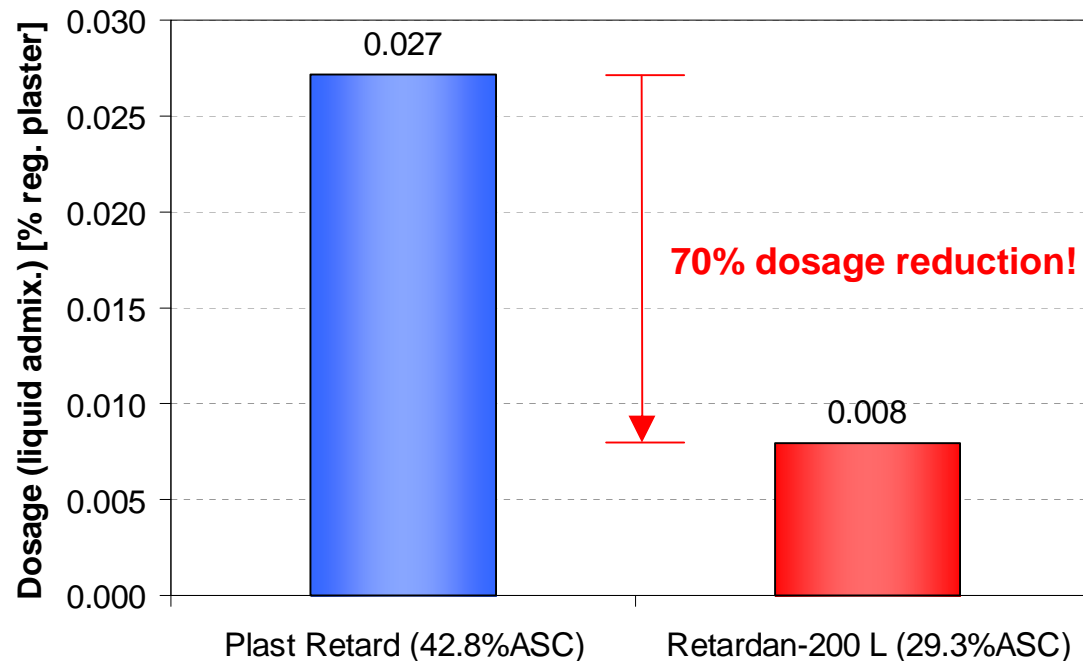
Product Performance



Influence of Retardan-200 L vs. a competitive retarder (organical) on initial and final setting of plaster of Paris (W/G=0.60); acceleration with 0.25% fine ground gypsum

New Product: Retardan®-200 L

Product Performance



Comparison of Retardan-200 L dosage vs. a competitive retarder for constant setting time of plaster of Paris (here: 40 min)

- ü Significant **dosage reduction** i.e. vs protein hydrolysates
à reduction of formulation costs

Additional benefits:

- ü Industrial production ensures **high and uniform product quality**
- ü No promotion of mold formation in final gypsum product (unlike protein hydrolysates)
- ü Water **dilutable**, i.e. for easier dosing
- ü **Compatible** with other additives like ViscoCrete® superplasticizers

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