

**S.T.R.O.N.G**

370-82 SHINPYUNG-DONG SAHA-KU PUSAN KOREA

**MYUNG KWANG CHEMICAL IND.CO.,LTD.**

TEL.82-51-206-7284, FAX.82-51-206-9048, E-mail: service@mkchem.com



## ITEM LIST ( COMPOUNDING CHEMICALS )

NO	DIVISION	ITEM	MAIN COMPONENT	APPLICATION
1.	Coupling Agent	CA-69 CP-75 MK-69	Silane	Rubber, Tire Tread
2.	Scorch Stabilizer	SUNCUTOR-90 S-50MB	Insoluble Sulfur General Sulfur	Rubber, Tire Belt, Ebonite, Tire Tread S-50MB : Stable sulfur M/B
3.	Dispersing Releasing Agent	SAZ-33 FAZ-38	Organic Fatty Acid, Fatty Acid Ester	Polymer (Synthetic, Natural Rubber)
4.	Reinforcing, Processing Agent for Adhesion and Cohesion	PAZ-30 PAZ-57 RAZ-20	Synthetic Resin	Compounding, Extruding, Injection, Tackifying for Rubber
5.	Antioxidant	SANTOL-D  SANTOL-SPS SANTOL-BHT  MK-LSP	Special wax Micro wax Polymer of 2,2,4-Trimethyl-1,2-Di- hydroquinoline Styrenated Phenol(powder) 2,6-Di-Tert-Betyl-4-Methyl- phenol, Styrenated Phenol(Liquid)	Rubber, Tire Tread, Latex Foam, Plastics wax, Food, Diene Rubber Footwear, Tube  Special Rubber for Industry
6.	Activator	AZ-SL PAZ-500	Organic High Molecular Polymer	Activator, Scorch Stabilizing Agent for Rubber
7.	Softner	SOFTNER	Fatty Acid	Softner for Rubber

## ITEM LIST ( COMPOUNDING CHEMICALS )

NO	DIVISION	ITEM	MAIN COMPONENT	APPLICATION
8.	Retarder	NONSCO-A	Aromatic, Organic Compound	Retarder for Vulcanizing
9.	Peptizing Agent	PEPTOL-909	Fatty Acid ester	Natural, Special Rubber, Decreasing Mooney Viscosity
10.	Deodorant	SMELAR-800	Special Organic Compound, Special Organic Perfume	Footwear, Special Rubber, Organic Matter, Food, Formaline, Ammonia
11.	Discolor-Resistant	DISCOLOR-4210	Phenol System	Rubber, PU
12.	Bleaching Agent	KAZ-068	Optical Brightner	Increasing Whitnness
13.	Sponge Cell Stabilizer	PAL-50M	Organic Synthetic Resin Fatty Acid Organic Polymer Organic Peroxide	EVA, RB Rubber, Dispersing Polymer Promoter for Sponge
14.	No Buffing Agent	WS-7350R	Organic Synthetic Compound	Rubber, EVA, RB Sponge (CR,PU System)
15.	Anti-Blooming Agent	BS-2		Plastic, Rubber Latex glove

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**CA-69, CP-75 (COUPLING AGENT)****PROPERTIES**

Properties \ ITEM	CA-69	CP-75
Appearance	Milky powder	
Main Component	Silane	
Silane Contents(%)	71-75	58-64
Specific Gravity	1.83	2.10
Storage	12months	
Caution	Avoid direct sunlight	

**CHARACTERISTIC**

- CA-69, CP-75 are silicic fillers, and play a role in making property and friction improved with a homogenizing dispersion.
- According to the property and friction required, CA-69,CP-75 can be used.

**APPLICATION**

- Automobile tire, shoes, sponge(EVA, RB rubber sponge), Convey belt, Rubber roller, Coated cable, Special rubber industrial products.

**EFFECT**

- Reduction of working process time, prevention of powder flying and scorch.
- The extruded surface is slippery.
- Improvement of physical property(Elasticity, Tensile strength, Anti-abrasion, etc.)
- Improvement of compression set effect.
- The coefficient of friction is low(Enlargement of friction-resistance)

**TEST RESULTS**

DIVISION	BLANK	CA-69	CP-75
SBR-1502	100.0	100.0	100.0
ZnCO3	5.0	5.0	5.0
ST/A	1.0	-	-
S-90	3.2		
D	0.5	3.2	3.2
DM	1.5	0.5	0.5
White Carbon	50.0	1.5	1.5
DEG	5.0	50.0	50.0
CA-69	-	5.0	5.0
CP-75	-	-	-
SCP-95	-	-	5.0
		-	-
<b>TOTAL</b>	<b>166.2</b>	<b>170.2</b>	<b>170.2</b>

DEVISION	BLANK	CA-69	CP-75
ML1 + 4(120°C)	65.0	60.0	57.0
Scorch Time	16'12"	16'00"	15'00"
Cure Time	3'00"	2'55"	2'50"
300% Md(kg/cm <sup>2</sup> )	80.0	85.0	90.0
Tensile strength(kg/cm <sup>2</sup> )	140.0	155.0	170.0
Elongation(%)	450.0	444.0	420.0
Tear Strength(kg/cm <sup>2</sup> )	40.0	45.0	53.0
Hardness(JISA)	68.0	64.0	62.0
Abrasion(NBS)	75.0	95.0	130.0

**PACKING**

- CA-69 : 15kgs net in paper bag
- CP-75 : 20kgs net in paper bag

## MK-69(COUPLING AGENT)

MK-69, reactive coupling agent contained bi-functional silane, gives improvement of physical properties in rubber by cross linking between rubber and filler(silica).

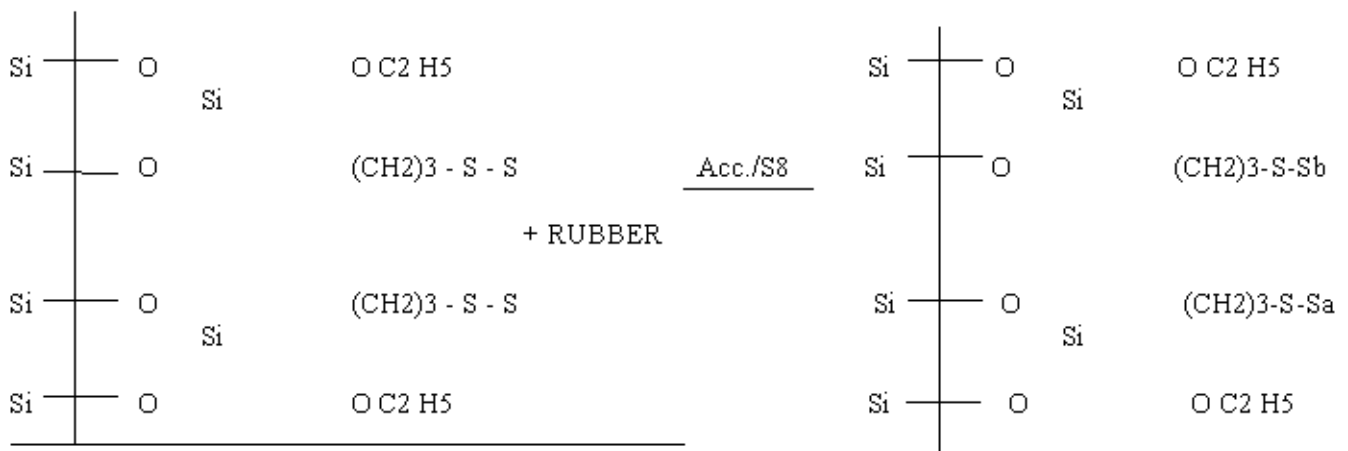
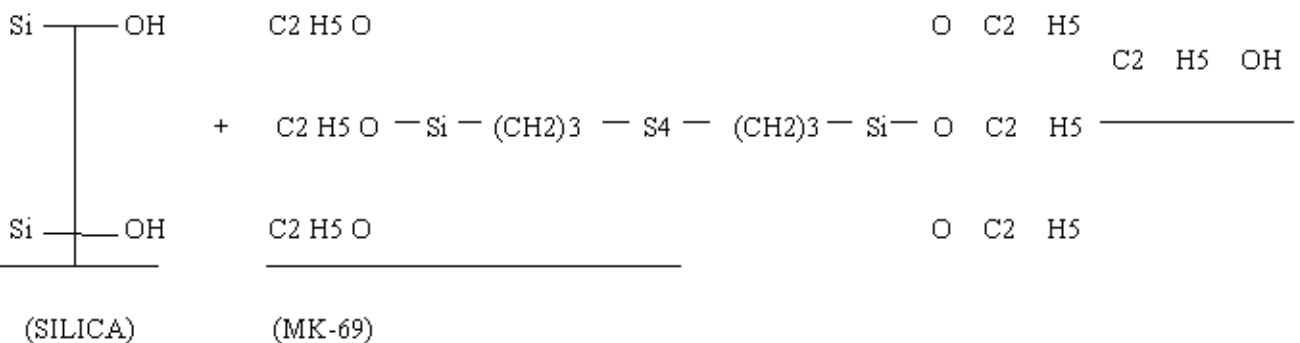
### PHYSICAL PROPERTIES

- Appearance ..... yellowish powder.
- Main component ..... bis-(3-tri ethoisilyl propyl)-tetra sulfide.
- S.G. .... 1.0
- Heat loss(%) ..... 0.5
- Stain ..... None
- Stability ..... 12 months

### CHARACTERISTIC

- Low friction coefficient(expansion of friction resistance).
- Improves the processing effect of the compounded rubber.
- Increases the dispersing efficiency of filler and chemical to be stabilized and uniformed.
- Makes the extruded surface slicky.
- Makes physical properties improved(especially abrasion).

### COUPLING MECHANISM OF MK-69, RUBBER, FILLER



(SILICA / MK-69) INTERMEDIATE

**TEST RESULT**

DIVISION	CONTROL	2 PHR	4 PHR	6 PHR
NR	20			
SBR	20			
BR	60			
ZnO	5			
ST/A	1			
WHITE CARBON	40			
PEG	3			
PROCESS OIL	5			
ANTIOXIDANT,SANTOL-BHT	1			
ANTIOXIDANT,SANTOL-D	1			
RELEASING AGENT,SAZ-33	1			
M	0.8			
DM	1.2			
TT	0.01			
INSOLUBLE SULFUR, SUNCUTTOR-90	3			
MK-69	0	1	2	3
<b>T O T A L</b>	<b>162.01</b>	<b>164.01</b>	<b>166.01</b>	<b>168.01</b>
TTHARDNESS(SHORE A)	60	60	62	62
TENSILE STRENGTH(KG/CM2)	128	130	132	136
TEAR STRENGTH(KG/CM)	51	58	60	64
ELONGATION(%)	660	630	600	590
S.G. (GR/CM3)	1.176	1.175	1.178	1.179
ABRASION(ARKON(cc))	0.58	0.43	0.35	0.20

## **SUNCUTTOR-90 (Rubber Scorch Stabilizer)**

### **PROPERTIES**

Appearance	Light yellow powder or pellet
Carbon Bisulfide Insoluble Contents(%)	Up 65
Specific Gravity	1.87
Acid Value	Below 0.05
Ash Contents(%)	Below 0.3
Softening Point(°C)	60
Moisture(%)	Below 0.1
Dispersing Effect	Good

### **CHARACTERISTIC**

- SUNCUTTOR-90 is composed of organic and inorganic compound contained 65% insoluble part of CS<sub>2</sub> and improved curing stability and dispersion.
- SUNCUTTOR-90 doesn't cause blooming of uncured rubber compound for a long time keeping and leaving alone.
- Accelerator, sulfur and filler composed with SUNCUTTOR-90 scarcely raises migration, discoloration and contamination at a long time keeping.
- When the temperature of workshop is over 40~50°C by using the SUNCUTTOR-90, scorch of rubber compound can be prevented and expensive retarder is unnecessary and though it keeps for a long time, it has good properties.(Dividing operation of sulfur is unnecessary)
- Curing condition is based on the same method for the composition of general sulfur and accelerator.
- Bonding powder is elevated when it is operated.  
(there is no bonding interference with migration of sulfur)
- SUNCUTTOR-90 gives support to clear color in compounding colored rubber.
- SUNCUTTOR-90 plays aiding agent in polymer and filler dispersion.(refer data)
- SUNCUTTOR-90 can save energy in working process.

### **APPLICATION**

- Applies for sulfur compound product with natural and synthetic rubber compounding.
- Uses for curing stabilizer of tire, rubber hose, shoes and ebonite.
- Uses for curing stabilizer of dipping products of latex gloves, balloon and nipple.
- Applies for a long time keeping of uncured rubber compound.  
(Don't use retarder at 50°C)
- Applies for the problems result from blooming and migration of uncured rubber compound.
- Applies for improving deterioration of physical properties by filler's dispersion.
- Secured scrap reclaiming for rubber compound.
- Improves foaming stability, surface flow, cleared color of rubber sponge, arch(insole), and continuous foaming sponge of shoes parts.
- As applied to shoes parts. It is effective to canvas, topping goods and boots.  
(Since it improves scorch stability and a long time keeping is possible, problems don't arise from toe-lasting when shoemaking)

## REFERENCE

- It'd be anxious about the fall of effect at using together with common sulfur in the rubber compound.(It's necessary to classify when using the scrap)
- Curing condition applies correspondingly to the case of common sulfur.

## STABILITY TEST OF UNCURED RUBBER COMPOUND

- It applies correspondingly to natural rubber compound. (scorch time)

Classification Time	Common sulfur (Composition 1)	Common sulfur + Retarder (Composition 2)	SUNCUTOR-90 (Composition 3)
24hrs(1 day)	10'30"	14'20"	11'20"
168hrs(7 days) change d rate(%)	7'10" (-46.5)	11'42" (-24.3)	10'20" (-9.3)
360hrs(15 days) change rate(%)	3'05" (-132)	8'30" (-37.5)	9'52" (-7.6)
480hrs(20 days) change rate(%)	-	5'05" (-64.4)	8'43" (12.9)

\*ML 1+4, 120°C ±1, Pheometer test

## THE AMOUNT USED

- applies correspondingly to use for 3 to 5PHR as rubber compound.

## PACKING

- 20kgs net in paper bag

**TEST**

- Natural rubber compound

Division	Common sulfur (Composition 1)	Common sulfur + Retarder (Composition 2)	SUNCUTTOR-90 (Composition 3)
SMR 5L	100	100	100
ZnO-1	5	5	5
ST	1	1	1
S	2	2	-
D	0.5	0.5	0.5
DM	0.5	0.5	0.5
CaCO <sub>3</sub>	50	50	50
PVI or E/C	-	0.3	-
SUNCUTTOR-90	-	-	4
<b>TOTAL</b>	159	159.3	161
ML 1+4, 120°C ±1	35.0	33.0	33.5
Scorch Time	10'30"	14'20"	11'20"
Blooming 50°C x 168hrs(oven)	a little	gross	none
Tb(kg/cm <sup>2</sup> )	180	190	201
Eb(%)	580	600	600
300% Md(kg/cm <sup>2</sup> )	38	35	42
Tr(kg/cm)	38	36	45
HD(JISA)	48	44	46
SG	1.18	1.17	1.17

Press time condition 150°C x 10'

### Synthetic rubber compound

Division	Common sulfur (Composition 1)	Common sulfur + Retarder (Composition 2)	SUNCUTOR-90 (Composition 3)
SBR-1502	100	100	100
ZnCO <sub>3</sub>	5	5	5
S	2	2	-
ST	1	1	1
M	1.5	1.5	1.5
DM	1.5	1.5	1.5
Zeosil	50	50	50
DEG	5	5	5
PVI or E/C	-	0.3	-
SUNCUTOR-90	-	-	4
<b>T O T A L</b>	166	166.3	168
ML 1+4, 120°C ±1	115	112	112.5
Scorch Time	18'20"	19'25"	18'00"
Blooming 50°Cx168hrs(oven)	a little	gross	none
Tb(kg/cm <sup>2</sup> )	138	136	148
Eb(%)	500	520	580
300% Md(kg/cm <sup>2</sup> )	64	62	68
Tr(kg/cm)	54	53	56
HD(JISA)	72	71	71
SG	0.147	0.146	0.145

Press time condition 150°C x 10'

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**S-50 MB ( Master Batch of Insoluble Sulfur )****PROPERTIES**

Appearance	Light yellow, rubber sheet
Sulfur Content(%)	50 ± 1
Ash Content(%)	0.1 below
Rubber Content(%)	30 ± 2
Dispersing Agent(%)	10 ± 2
Others	10 ± 2
Storage	12 months(Avoid direct sunlight)

**CHARACTERISTIC**

- S-50 MB is a master batch improved dispersion and stability of insoluble sulfur and general sulfur.
- S-50 MB is a product which is preventing sulfur blooming of rubber and improving precision for compounding.

**APPLICANT**

- Vulcanizing agent for rubber.  
( Use 2 times against present amount used general sulfur because sulfur contents is 50 percent. )
- Vulcanizing agent and reinforcing agent of hardness for ebonite.
- Vulcanizing agent for special rubber, tire and belt.

**SAZ-33 (Releasing Agent)****PROPERTIES**

Appearance	Small light flake(non-staining)
Specific Gravity	Approx. 1.15
Melting Point (°C)	80-95
Ash Content(%)	19-20
Acid Value	Max.10
Reaction	Natural
Storage Stability	At least two years in normal storage condition

**POLYMER SYSTEM RECOMMENDED**

- NR, IR, SBR, EPDM, NBR/PVC, CR, CSM, BR

**PRIMER RECOMMENDATION**

- Improves flow and release, having an effect on physical dispersing agent for powder material loaded 1~2 PHR.

**SOME PROBLEMS THAT CAN BE SOLVED WITH SAZ-33**

- Prevents sticking of elastomer, compound to roller and calender bowls.
- Reduces scorch risk of high loaded compound.
- Improves flow, especially in NBR and CR.

**CHARACTERISTIC**

- Improves flow and release of compounds for using 1-2 PHR.
- Has a good releasing property for adding in final step of compounding process.
- It is effective for dispersing agent of powdered material.

**APPLICATION**

- prevents sticking of rubber compound to rotor, roll and calender.
- reduces scorch risk of high loaded compound rubber.
- improves flow of mixture, especially in NBR and CR.
- increases separation from calender, having no effect on cured rubber adhesion.
- can reduce consumption of energy at mixing work.
- increases releasing effect of mold.(Complicated or deep engraved)
- decreases final compounding temperature.
- gets surface of extrusion sleekly and gives luster on surface owing to decreasing viscosity of compounds.
- improves uniformity of EPDM extruded product.
- decreases viscosity at storage for using in CR compounds.

**PACKING**

- 25kgs net in paper bag.

**FAZ-38(Dispersing and Processing Aid for natural and synthetic rubber)****COMPOSITION**

- Mixture of high-molecular, aliphatic, hydrophilic fatty acid esters, anti-Phenol and condensation product bounded to chemically indifferent fillers.

**PROPERTIES**

Appearance	light granule
Specific Gravity	Approx. 1.15
Melting Point(°C)	Up 60
Ash Content(%)	20 ± 1
Acid Value	Max.10
Properties in the cured rubber	Non-staining
Storage Stability	At least two years in normal storage condition

**POLYMER SYSTEMS RECOMMENDED**

- NR, IR, SBR, IIR, EPDM, CR, NBR/PVC, PE, EVA, RB, Hypalon.

**PRIMER RECOMMENDATION**

- improves flow and release, having no effect on physical properties.
- dispersing agent for powdered material and rubber polymer.
- effective on antioxidant.(Phenol)
- loaded 0.5-2.0 PHR.(for dispersing polymer.)
- loaded 0.5-3.0 PHR.(for dispersing the filler.)

**CHARACTERISTIC**

- improves processibility and dispersion of rubber compound.
- prevents sticking of elastomers and compounds to roller and calender bowls.
- improves flows and dispersion, especially in NR/BR, SBR/PVC and EPDM/CR.
- reduces scorch risk of high loaded compounds.
- improves releasing effect from calender bowl, having no effect on cured rubber adhesion.
- decreases final mixing temperature.
- can save consumption of filler.
- effective antioxidant.
- good dispersion of filler for rubber sponge.
- improves dispersion of pigment.(organic, inorganic pigment)

**APPLICATION**

- can be got physical properties uniformly for improving dispersion of polymer and filler.
- prevents sticking of polymer or compounds to roller or calender.
- stabilizes scorching of a high loaded filler compounds.
- reduces processing work time at heating of mixture and maintains surface uniformly.
- improves releasing effect from calender bowl having no effect of cured rubber adhesion.
- can save mixing time of compounding work and consumption of energy.
- decreases final compounding temperature.
- uniforms surface of extrusion and flow condition without reducing viscosity of compounds and gives lubricativity on surface.

- effect for anti-oxidization of cured rubber.(having no concern with blooming)
- excellent for dispersing agent of organic and inorganic pigment.

**PACKING**

- 25kgs net in paper bag.

**PAZ-30, PAZ-57 ( Tackifying and Homogenizing Agent )****COMPOSITION**

- Mixture of liquid elastomer and predominant white carbon.

**PROPERTIES**

Item	PAZ-30	PAZ-57
Appearance	White powder	
Odour	Natural	Natural
Softening Point(°C)	50-60	60-65
Specific Gravity	1.15-2.00	1.15-2.00
PH	7-8	7-8
Moisture(%)	1.5-2.0	1.5-2.0
Ash Contents(%)	30-35	35-40
Storage Stability	At least two years in normal storage condition	

**CHARACTERISTIC**

- Uniform quality and free from impurities.
- Colorless and almost odorless.
- Well-balanced adhesive properties.
- Miscible with natural rubber and liquid elastomers.
- Curable in a usual way.
- Improves flow and bonding effect on physical dispersing agent for powdered materials loaded approx.3 to 5PHR.

**POLYMER SYSTEM RECOMMENDED**

- NR, IR, SBR, BR, EPDM, NBR / PVC, CR, TPR, CSM.

**APPLICATION**

- Pressure sensitive adhesives, cohesive plasters.  
(well-balanced adhesive properties)
- Rubber adhesives for footwear, rubberized cloth.  
(high concentrated adhesives)
- Hot melt adhesive.  
(improves low temperature properties)
- Rubber process aid and curable plasticizer.  
(improves flow behaviors during calendering, extruding and molding)
- Binders for rubber magnets, grindstone, color masterbatches.  
(well-balanced adhesive properties)
- Sealants, calkins, paints  
(well-balanced adhesive properties)
- Manufacture of chlorinated rubbers, cyclized rubber and graft polymers as a chemical material.

**PACKING**

- 25kgs net in paper bag.

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**RAZ-20 (Reinforcing Resin)**

RAZ-20 is a newly developed terpene resin and resin produced on certain aromatic fractions.

**PROPERTIES**

Appearance	Light yellow powder
Softening point(°C)	70 ± 5
Color	Max. 5(Astm D-1544-58 T)
Specific Gravity	1.12
Bromine Value	Max. 30(Astm D-1158-57 T)
Acid value	Max. 0.1(Astm D-1613-6 T)

**FORMULATION**

-. Rubber Compounding

DIVISION	None	RAZ-20	ROSIN 2W ( C. I. R )
SBR-1502	100	100	100
ZnO-1	5	5	5
ST	1	1	1
S	2	2	2
DM	1.5	1.5	1.5
TT	0.2	0.2	0.2
White Carbon	50	50	50
P-Oil	2	2	2
D.E.G	5	5	5
Tackifier	-	1.5	3.0
<b>TOTAL</b>	<b>166.7</b>	<b>168.2</b>	<b>169.7</b>

## Moony Test

Division	None	RAZ-20	ROSIN 2W ( C.I.R )
M-V S-T C-S	42 12'30" 3'20"	34 13'00" 3'50"	37 15'00" 3'50"

- Ozone Test (At 50 ppm, 35°C)  
10.2 hrs (Cracking) 10.0 hrs(Cracking) 6.5 hrs(Cracking)

## - Results of vulcanization test

Division	Press time (Minute)	300%MD (kg/cm <sup>2</sup> )	EB(%)	TB(kg/cm <sup>2</sup> )	Hardness(JIS)	Abrasion(NBS)
NONE	10	80	500	152	64	95%
	15	88	550	150	66	
	20	84	580	140	66	
RAZ-20	10	85	680	167	60	110%
	15	82	650	160	60	
	20	80	620	150	62	
ROSIN 2W (C. I. R)	10	73	600	150	57	80%
	15	78	580	145	60	
	20	70	530	140	60	

## PACKING

- 25kgs in paper bag ( contained P.E film)

**SANTOL-D (Antioxidant)****PROPERTIES**

Appearance	White flakes(clear)
Main Component	Special wax(P-wax)
Melting Point(°C)	Up 65
Specific Gravity	0.90~0.95
Ash Contents(%)	Below 0.1
Staining	None

**CHARACTERISTIC**

- SANTOL-D is the only commercially available paraffine wax(special wax) showing high antiozonant activity.(In both natural and synthetic rubber)
- It acts as an antioxidant, antiozonant and antiflexcracking agent.
- Easy dispersion
- Good antioxidant properties
- Good flexcracking resistance
- Good resistance to ozone cracking
- Reduces cracking growth under ozone attack

**USES AND DOSAGES(PHR)**

- General rubber shoes : 1.0 - 2.0 phr
- Tire tread : 1.0 - 2.0 phr
- Camelback : 2.0 - 3.0 phr
- Hose : 2.0 - 3.0 phr
- Belting : 1.5 - 2.0 phr
- Cables : 3.0 - 5.0 phr
- Mountings : 1.5 - 2.0 phr
- Buffers : 1.5 - 2.0 phr
- Mechanicals : 1.5 - 2.0 phr

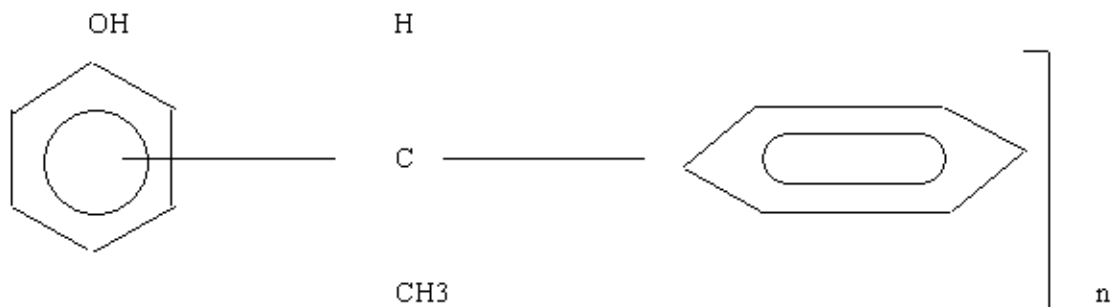
**PACKING**

- 25kgs net in paper bag(contained P.E film)

## SANTOL-SPS (Antioxidant)

### PROPERTIES

- Structure



- Appearance ..... White powder and sur-particle
- Melting Point(°C) ..... Above 60
- Moisture(%) ..... Below 0.1
- Ash Content(%) ..... Up 30
- Staining ..... None

### APPLICATION

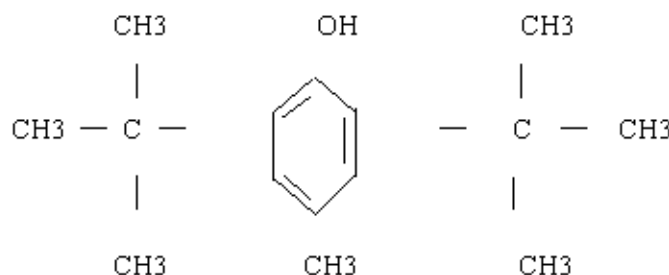
- Plastic, PVC : Polypropylene, Polystyrene, Polyester, PVC, Polymethacrylate, Synthetic resin.
- Wax, Petroleum : Gasoline for aircraft and motorcar
- Hydrocarbon system : lubricating-oil, transformer-oil, turbine-oil
- Rubber : natural and synthetic rubber (prevention of discoloration at sunlight, reactivity-resistance, heat-resistance)
- Paint
- Oil and Fats (animal, plant)for adding in food
- Fodder (for adding in fodder)
- Rubber glove, Balloon, Rubber depositing products(baggage)

### PACKING

- 25kgs net in paper bag

**SANTOL-BHT (ANTIOXIDANT)****PROPERTIES**

- Structural Formula



( 2, 6-di-tert-butyl-p-Cresol )

- Appearance ..... White surface granular  
(Yellowish at long-storage)
- Moisture Point(%) ..... Above 70
- Moisture(%) ..... Below 0.1
- Ash Contents(%) ..... Below 0.1
- Staining ..... Non-staining

**APPLICATION**

- Plastic, PVC : Polypropylene, Polyethylene, Polystyrene, Polyesters, PVC, Polymethacrylate, Synthetic resins.
- Wax, Petroleum : Gasoline for aircraft and motorcar
- Hydrocarbon(lubricating oil, transformer oil, turbine oil) : Paraffin wax
- Rubber : Oxidation and senility of natural or synthetic rubber can be prevented
- Paint
- Oil(s) and Fat(s) (animal, Plant) : for adding in food
- Fodder (for adding in fodder)
- Rubber glove, Balloon, Rubber dipositing Product.

**PACKING**

- 25kgs net in paper bag

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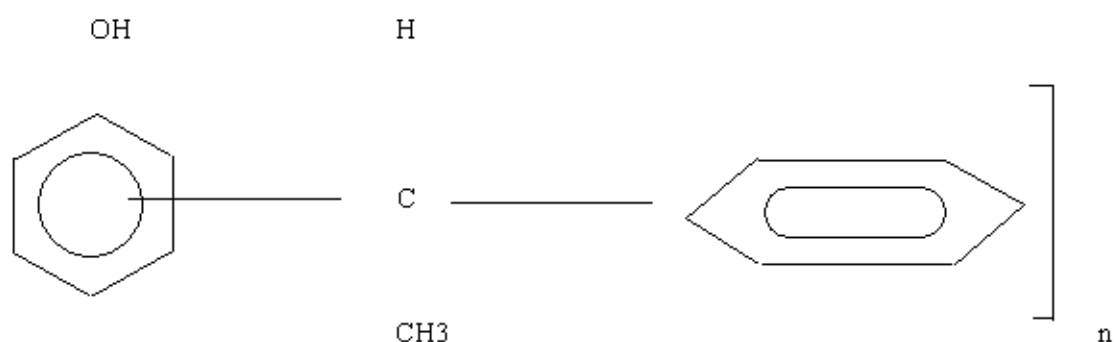
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**MK-LSP (Antioxidant)****CHEMICAL NAME**

- Styrenated Phenol

**PROPERTIES**

Appearance	Citrine transparent viscous liquid
Purity(%)	98 up
Heat Loss(%)	0.5 below
Ash contents(%)	0.3 below
Specific Gravity(25°C)	1.07-1.09
Staining	None
Storage	Good

**PACKING**

- 200Kgs net in drum

**AZ-SL (Activator)**

AZ-SL is an activator for silica fillers with the special characteristic to lower the danger of scorch at the low temperature area.

AZ-SL promotes safe production up to 120°C.

In comparison to the very often used activators, like diglycol or triethanolamine, the full activation will be received at the final curing temperatures between 140-160°C.

Activator, AZ-SL consists of white fine grains and promotes easy, clean and exact handling.

It further promotes fast and exact blending in roller mill or in internal mixers.

**PROPERTIES**

Appearance	Small, White grains
Odour	Typical, light aromatic
Specific Gravity	1.1-1.5
Reaction	Neutral
Storage	Unlimited in cool and dry conditions
Physiological Behavior	Harmless
Staining	None

**COMPOUNDING DATA**

DIVISION	A	B	C	D	E	F	G	H	I	J
SBR-177 S	100	100	100	100	100	100	100	100	100	100
AnCO <sub>3</sub>	5	5	5	5	5	5	5	5	5	5
ST	1	1	1	1	1	1	1	1	1	1
S	2	2	2	2	2	2	2	2	2	2
M	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
DM	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
White Carbon	50	50	50	50	50	50	50	50	50	50
Acting-S L	-	3	6	10	-	-	-	-		
DEG	-	-	-	-	-	-	-	3	6	10
Activator AZ-SL	-	-	-	-	3	6	10	-	-	-
TOTAL	161	164	167	171	164	167	171	164	167	171

**- Results**

PHR (Filler)	M-V			S-T			C-S		
	SL	AZ-SL	DEG	SL	AZ-SL	DEG	SL	AZ-SL	DEG
0	65'00"			40'30"			10'05"		
3	49.5	64.2	45.4	11'15"	12'10"	18'32"	13'18"	13'18"	6'10"
6	41.5	63.5	37.0	8'30"	8'10"	5'10"	2'12"	2'12"	5'32"
10	35.8	62.0	33.7	6'11"	5'15"	13'40"	1'42"	1'40"	2'58"

[ Condition : 120°C ± 1 ]

**- Schopper Test**

Press Time	PHR (Filler)	300%MD(kg/cm <sup>2</sup> )			TB(kg/cm <sup>2</sup> )			EB(%)			HD(JIS)		
		SL	AZ-S L	DEG	SL	AZ-S L	DEG	SL	AZ-S L	DEG	SL	AZ-S L	DEG
10'	0	51			152			700			68		
	3	54	58	55	126	170	125	500	580	550	65	65	63
	6	57	63	57	117	173	115	450	560	500	63	71	60
	10	60	70	59	113	175	112	430	550	480	60	72	58
15'	0	56			155			59			69		
	3	59	62	53	113	163	110	480	575	520	66	72	65
	6	69	69	55	104	160	108	470	560	480	65	70	65
	10	68	70	58	100	155	98	450	558	458	65	70	65

[ Press Time : 150°C ]

**CHARACTERISTIC**

- organic amine type
- excellent effect of cured lubrication.
- obtainable cured effect in a short time about scorch at suing in combination with acid cured promotor(M,DM) and acid system aid promotor(TT,TS).  
can prevent retardation of scorch by adding silica acid system filler(white carbon)
- obtainable effect of scorch stability, dispersion and processivity by using a little quantity.
- improves rubber property.
- suitable for white transparent compounding for non-staining.
- stable storage.
- good dispersion of silica acid ester system filler and increases reinforcing porperty.
- suitable for using 0.1 to 5PHR about silica acid ester system filler.
- uses for multipurpose of rubber shoe products, tire, tube, cable, belt and industrial products.

**PACKING**

- 25kgs net in paper bag

**PAZ-500 (Polyethylene Glycol, Activator)****PROPERTIES**

Appearance	White flake
Molecular Volume(Average)	3,800~4,800
Hydroxy Value	23~30
Active Content(%)	99.5 up
Melting Point	53~58℃
PH(By glass electro pH meter)	5 - 7

**CHARACTERISTIC**

- has excellent relative solubility about all kinds of organic matters.
- has good relative solubility with the major part of organic solvent and is soluble in water exceedingly.
- is effective for anti-evaporate solvent because of high melting point.
- can compound from solid to liquid owing to being able to control degree of polymerization at will.
- can control hygroscopic.
- has no virulence.

**APPLICATION**

- Rubber industry
  - . is useable for releasing agent of foam rubber and latex rubber because of good solubility for solid and is effective for releasing agent of tire airbag, internal releasing agent and lubricant.
- Textile industry
  - . is using extensively in textile industry.
  - . is used for softner, static electricity preventer, cleaner, sizing agent and dyeing agent.
- Paper manufacturing industry
  - . endows soft effect of the quality of paper in paper manufacturing industry.
- Metal industry
  - . raises grinding effect of compounding with abrading and uses raw material of anti-rusting agent and cleaner for metal.
- The lumber industry
  - . prevents contraction and crack of wood for deposit wood in PAZ-500 aqueose solution previously.
- Drug industry
  - . uses for salve.
- Cosmetic industry
  - . mixes with shampoo and hand-cream lotion.
- Uses for raw material of resin and paint resin in paint industry.

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**SOFTNER (Paraffin Wax)****PROPERTIES**

Appearance	White translucent crystal bead
Main Component	Paraffin wax
Melting Point(°C)	52-58
Specific Gravity	0.90~0.92
PH	7
Ash Contents(%)	Below 0.1
Moisture(%)	Below 0.1
Staining	None

**CHARACTERISTIC**

- has an affinity for benzene, alcohol, chloroform, terpene oil, carbon bisulfide and olive oil.
- has no affinity for chemicals and water.
- is good electric insulator.
- is odorless and non-staining.

**APPLICATION**

- Paraffin paper, candle, crayon electric insulator, match, moisture-proof of explosive, water-proofing agent, rust-proofing agent, abradant, antioxidant of rubber, plastic and PVC.

**PACKING**

- 25kgs net in sack bag.

## NONSCO-A (Retarder)

NONSCO-A is a highly effective retarder with a novel chemical composition. IT is considerably more powerful than retrders of the N-nitrosoarylamine type or organic acid, e.g. salicylic acid and phthalic anhydride. Nonsco-A can also be used as a replasticizing agent.

### PROPERTIES

- Chemical composition ..... Sulphonamide derivative formulated calcium carbonate(approx. 5%) and mineral oil (approx.1-2%)
- Physical form ..... Fine beige-white powder, practically non-dusting
- Smell ..... Weak characteristic smell
- Density at 20 °C(g/cm<sup>3</sup>) ..... 1.68
- Melting point of active ingredient(°C) ..... About 110
- Solubility of active ingredient ..... Soluble in ethyl acetate, benzene, Methylene chloride, Carbon tetrachloride. Difficulty soluble in acetone, alcohol, petrol(gasoline). Practically insoluble in water
- Storage stability ..... according to our experience, product keeps for at least 12 months without loss of efficiency.

### EFFECT

Nonsco-A increases the scorch time very much and therefore extends the flow time. As the dosage of Nonsco-A is raised, the retarding effect increases more or less proportionally. The vulcanization time is increased, of course, but to a relatively small extent. Nonsco-A there fore shows very steep advantage of Nonsco-A over conventional retarders since short vulcanization times, if compatible with good scorch resistance, are almost universally desired.

- NR compounds with sulphonamide accelerators

- . Where the vulcanization of the compound is accelerated with, Nonsco-A is 2.5-3.0 times as effective as N-nitrosodiphenylamine ;so the proportion of retarder used on earlier occasions can be substantially reduced.

- SBR compounds with sulphonamide accelerators
  - . Nonsco-A is about 3.0-3.5 times as effective as N-nitrosodiphenylamine if the accelerator is accelerator is Vulkacit CZ ; in the presence of Vulkacit MOZ it is 1-2 times as effective.
- Compounds with Mercapto accelerators
  - . If the accelerator is Vulkacit DM or Vulkacit Merkapto, Nonsco-A is 4-5 times as effective as N-nitrosodiphenylamine.
- Compounds with other accelerators
  - . Here, depending on the accelerator concerned, Nonsco-A is 1.5-3.5 times as effective as N-nitrosodiphenylamine.
- Compounds with Vulkacit thiuram and a little or no sulphur
  - . Nonsco-A like most other retarders, has a very slight retarding effect, or not at all, on the vulcanization of compounds containing thiuram and NR or SBR and containing Vulkacit CZ.
- Discoloration
  - . Nonsco-A has not influence on the intrinsic colour of the vulcanizates. It also causes no contact staining. Discoloration of vulcanizates to the light can be prevented unless they are pure white, in which case they undergo slight yellowing favourable than such other retarders as N-nitrosodiphenylamine.
- Blooming
  - . Non blooming is observed when the recommended additions are used.
- Smell
  - . The recommended additions of Nonsco-A give the vulcanizates no smell.
- Physiological properties
  - . The suitability of Nonsco-A for food-related goods has not yet been examined.

## APPLICATION

As already mentioned, Nonsco-A is used to delay the onset of vulcanization. By adding Nonsco-A, one can control the processing safety and scorch resistance within wide limits without having to change the formulation in other ways. When compounds contain Nonsco-A, intricate shaped goods can be moulded and vulcanized easily.

As a re-softening agent, Nonsco-A can be used to rehabilitate Mooney, scorch value which have been reduced in consequence of a particular heat history.

In other word, a flow time which has been reduced by unsuitable working process, etc., can be increased by adding Nonsco-A to the compound.

Nonsco-A is particularly suitable for tire compounds because its retarding effect on thiazole accelerators is exceptionally marked. However, it is also suitable for use in manufacturing the other kinds of products, a little or no sulphur. NBR compounds, whose vulcanization can be retarded with Nonsco-A are an exception; here the retarding effect can be intensified by adding sulphonamides, especially

vulkacit MOZ. If magnesium oxide is included, Nonsco-A is also effective in thiuram-cured compounds based on NR or SBR.

If the increase in scorch resistance (Mooney scorch time) is considered in isolation, and not in comparison with the increase given by N-nitrosodiphenyl amine, then it is found to be greatest in compounds whose vulcanization is accelerated with Vulkacit CA, MOZ, NZ, DM or Merkaptol.

### **BEHAVIOUR IN COMPOUNDS**

- Dispersion
  - . Nonsco-A is easy to incorporate and disperse just with a little additions.
- Viscosity
  - . Nonsco-A has practically no influence on the viscosity.
- Porosity
  - . Unlike retarders of the N-nitrosocarbyl amine type, Nonsco-A imparts no porosity to the compounds processed at high temperatures. This is a decisive advantage in the production of uncured tire treads.

### **EFFECTS ON VULCANIZATION AND VULCANIZATES**

- Vulcanization
  - . The cure time must be adjusted to the changed rate of vulcanization.
- Mechanical properties
  - . Nonsco-A generally has no undesirable effect on the mechanical properties of the vulcanizates. In particular it leaves the tensile strength and resilience properties substantially unchanged. It may increase the degree of crosslinking (and hence the modulus) by about 5-10%. In some cases, though, it has been found that large proportions of Nonsco-A (0.5 parts by weight) slightly reduce the modulus values of vulcanizates based on industrial technical goods, footwear and footwear soles. Above all, the product is recommended for moulded goods, e. g. those produced by injection and transfer moulding.

### **RECOMMENDED ADDITIONS**

(calculated on 100 parts by weight of rubber)

As a retarder for compounds containing Vulkacit CZ, NZ, DM, Merkaptol

0.1 - 1.0 p. b. w. Nonsco-A

As a retarder for compounds containing other accelerators

0.2 - 2.0 p. b. w. Nonsco-A

As a re-softening agent

0.2 - 2.0 p. b. w. Nonsco-A

## PEPTOL-909 (Peptizing Agent)

PEPTOL-909 is a very effective peptizing agent which is particularly suitable for use in the mastication of natural rubber at high or low temperatures in the mill or in internal mixers. PEPTOL-909 also aids the mastication of synthetic rubbers.

PEPTOL-909 is easy to incorporate and disperse quickly.

### PROPERTIES

Appearance	White powder
Density(g/cm <sup>3</sup> )	Approx. 2.3
Melting point	Partly fusible
Softening point(°C)	Below 60
Odour	Practically odourless
Staining	None
Product safety	Regarding the handling of PEPTOL-909, your attention is drawn to safety data sheet.

### BEHAVIOUR IN COMPOUNDS

- Dispersion : PEPTOL-909 is easy to incorporate and disperse entirely satisfactorily. It can be incorporated as the first addition to the rubber, regardless of an internal mixer or a mixing mill is used. PEPTOL-909 can also be added as a SBR-based batch with a concentration of 10% ; this batch can be kept for about three weeks. An NR batch containing PEPTOL-909 at the same concentration is not stable in storage and therefore cannot be used.

- Effect : In mastication, the molecule chains of the rubber are split up in a reaction in which atmospheric oxygen participates. This leads to reduce the molecular weight and thus to increase plasticity.

### INFLUENCE ON THE VULCANIZATION AND VULCANIZATES

- PEPTOL-909 may activate the vulcanization very slightly, but only if it is used at high dosages(1.0PHR, calculated on 100PHR rubber), PEPTOL-909 has practically no influence on the ageing behaviour of vulcanizates which contain the normal quantity of antioxidant. Vulcanizates produced with fairly large amounts of PEPTOL-909, and contained no antioxidants or stabilizers, are less resistant to age. According to the trials completed so far, PEPTOL-909 at concentrations of up to 1.0% causes no discoloration. The odour and taste of the goods are not affected.

### APPLICATION

- PEPTOL-909 is used to accelerate the mastication of NR and SBR and their blends.

### RECOMMENDED ADDITION

- The lower figures of the following recommendations can be approached as the temperature of the rubber rises.

. Natural rubber(NR)

2.0-1.0 PHR(80-170°C)

. Synthetic isoprene rubber(IR, SBR)

2.0-1.0 PHR(80-150°C)

**SMELAR-500, 800, 218 (Deodorant Antioxidant)**

SMELAR-500 and 800,deodorant antioxidant, are organic compound composed of harmless food additives and has characteristic anti-oxidation and deodorization by chemical reaction.

Especially, SMELAR-218 is a kind of ecellent heat-resist, low-volatile incense and keeps up peculiar incense after adding in rubbers, plastics,etc.

**PROPERTIES**

<b>Properties Item</b>	<b>SMELAR-500</b>	<b>SMELAR-800</b>	<b>SMELAR-218</b>
Appearance	Transparent aqueous solution	White Powder	Light-yellow liquid
Main component	Special organic compound		special organic synthetic incense
Specific Gravity	1.01 - 1.03	2.64-2.66	1.51-1.53
PH	3.5	-	3.5
Ash content(%)	below 0.1	68-72	below 0.1
Staining	none		minute-staining
Heat Stability	stable		
Storage	Normal-Temperature	normal-temperature	

**APPLICATION****\* SMELAR-500**

- . Bad smell of organic matters.
- . Rotting smell of foods
- . Formaline, Ammonia stench.
- . Bad smell in fishes and foods processing workshop.
- . Excretion stench.
- . Sewage, hospital waste matters.
- . Sweat and stench of shoes(Spray).
- . Rubber stench at adding latex mold compound.

**HOW TO TEST DEODORANT**

1. Putting sample 1,000cc in breaker.
2. Adding SMELAR-500, 5cc in breaker.
3. Mixing slowly and maturing for 30minutes.
4. Testing deodorant effect.

**\* SMELAR-800**

- . Rubbers, plastics, EVA sponges.
- . Rubber Arch Sponge for shoes.
- . Rubber parts for cars.
- . Use 3-5 PHR to rubber, resin.

**\* SMELAR-218**

- . Plastics.
- . Rubber(part for shoes)
- . Latex MOLDING (Nipple, Balloon, Latex glove)
- . Excelent heat-resistance and keeping up continuos incense.

**PACKING**

- SMELAR-500 : 1Kg, 5Kgs 15Kgs net in can.
- SMELAR-800 : 20Kgs net in paper bag
- SMELAR-218 : 1Kg, 5Kgs net in can.

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**DISCOLOR-4210 (Anti-discoloration Agent)**

[2,2-Methylene bis(4-methyl-6-tert-butylphenol)]

**PHYSICAL FORM**

- Slightly yellowish, fine crystalline powder with good solubility in organic solvents, plasticizers, monomer, plastics, resins and varnish binders.

**PROPERTIES**

Appearance	Slightly varnish fine crystalline powder
Molecular Weight	230.25
Melting point(°C)	80-90
Ash content(%)	0.1
Density(25°C, g/cm <sup>3</sup> )	1.325
Moisture(%)	Max. 0.3
Storage Stability	Good

**USES**

- DISCOLOR-4210 can be successfully applied particularly in the following plastics and paint binders.
- Cellulose derivative.
- Rubber
- PVC(Plasticized and unplasticized)
- Polystyrene
- Polymethacrylate
- Polyvinylidene Chloride
- Unsaturated Polyester Resins.
- good anti-discoloration effect to above materials.

**USED RANGE**

- 0.5~3.0 PHR(Polymer Weight)

**KAZ-068 ( Optical Brightener for Plastics , resin )**

KAZ-068 is a pure optical brightener which can be used for high polymers in any processing form and produces very brilliant white effects with a bluish tinge.

**PROPERTIES**

- Appearance : Yellowish green powder
- Melting Point : 211°C
- Solubility at 25°C :

Acetone	170
Ethanol	32
Dimethyl Formamide	760
Isopropanol	22
Methanol	4
Mesitylene	860
Perchloroethylene	950
Carbon Tetrachloride	800
Toluene	1,020

- Lightfastness : Lightfastness greatly depends on the plastic and its chemical composition and stabilizer system; Samples exposed in the Xenotest show the following lightfastness when assessed against the blue scale;

Polyvinyl Chloride	4-8
Polyethylene	4-5
Polypropylene	4-5
Acetyl Cellulose	5-6
Polystyrene	3-5

- Stability : KAZ-068 is not sensitive to the light when in solution.
- Toxicity : Toxicity tests on animals have confirmed that KAZ-068 is well tolerated; it may be used in packing film, in toys and household utensils, where by the legal regulations of the different countries must be compelled with.
- Uses : KAZ-068 can be used in all types of plastics for film, injection moulding and compression moulding, paints and varnishes.

**USE IN THERMOPLASTICS**

- In the case of pigmented plastics, very brilliant whites can be obtained with concentrations of 5-50g/100kg plastics.
- In the case of transparent plastics, improvement in appearance is usually all that is required. This can be achieved with 0.5~5g/100kg plastics.

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## **PAL-50M (Super Compressing Agent)**

PAL-50M composed of reactive highly polymerized compound, gives the maximum effect of compression set for increasing degree of activation of EVA, RB and Rubber sponge and is a kind of quicker improved physical properties.

### **PROPERTIES**

Appearance	White Powder
Main Component	Highly polymerized compound (reactive catalyst)
Specific gravity	1.02
Moisture(%)	Below 0.1
Staining	None
Storage	Long stability(Keeping dry condition)

### **APPLICATION**

- . Sponge compounding Agent
  - applies in case of needing high compression set for foaming product of EVA, PE, RB.  
(DCP Crosslinking type)(use 5PHR)
- . Rubber Compounding Agent
  - increases hardness, raises degree of activation, softens uncure rubber compound, and gives processivity excellently in extruding when adding in synthetic, natural and special rubber.
  - improves hardness in curing rubber.(use 3-5PHR)

**TEST RESULT**

DIVISION	A	PAL-50M
E.V.A.	50.0	80.0
S.B.R.	20.0	20.0
S.T.	1.0	1.0
Filler	50.0	50.0
D.C.P.	0.8	0.8
Blooming Agent	5.5	5.5
PAL-50M	-	5.0
<b>TOTAL</b>	<b>157.3</b>	<b>162.3</b>
Split Tear(kg/cm)	2.3	3.0
Eb(%)	350.0	380.0
Hd(Type C)	52.0	53.0
S.G.	0.1824	0.1850
Compression Set(%)	65.0	50.0

\* Press time : 5kg/cm<sup>2</sup> x 25min(thickness : 26mm)

**CHARACTERISTIC**

- applies as modifier for rubber and special rubber( CSM, NBR, EPDM, ECO) extensively and prevents blooming for raising degree of activation and improves physical properties generally.
- is excellent flow and low-hardness in uncured ocomdition of extrusive rubber and improves hardness after curing.
- improves compression set of EVA and RB sponge and physical prorerties generally.

**PACKING**

- 20kgs net in paper bag.

**WS-7350R (RUBBER)**

WS-7350R is applied to improve buffing to no-buffing and adhering of cured rubber outsole and phylon sponge in shoe-making progression and applied to present lines as it stands and contributes to improve productivity and down cost.

**PROPERTIES**

DIVISION	WS-7350R
Appearance	White Powder
Main Component	Organic Powder
Heat Loss(%)	60 ± 2
Storage	Avoid the direct sunlight

**COMPOUND FOR RUBBER, PHYLON SPONGE**

. Generally, the higher content of synthetic rubber, the worse the test result of adhesion, but in this result, the higher of BR-01, the more improve strength of adhesion, this is that boundary adhesion turns reactive material.

(NBR>BR-01>SBR>IR>NR)

. Antioxidant --- P-wax, Organic Fatty Acid, Paraffin Oil, Polyethylenewax, Naphtha Oil and so on are obstacles in no buffing adhesion

. B.H.T., LSP have no effect on adhesion.

. Basic Compound(rubber)

SBR	10.0		Tb(kg/cm <sup>2</sup> )	130-140
IR	20.0		Eb(%)	500-550
BR	70.0		Tr(kg/cm)	40 ↑
ST/A	1.0		Hd(A)	60-63
ZNO-1	5.0	(T-AZO:7.0-8.)	Ab	0.5
M	0.5		SG	1.15
DM	0.7		(M-V:55-60)	
TT	0.2		(S-T:2'30"-3'00")	
BHT	1.0		(C-S:4'-5')	
ZEOSIL-155	45.0			
PEG-4000	5.0			
SUNCUTTOR-90	3.0			
CA-69	5.0			
WS-7350R	5.0			
TOTAL	172.4			

- . WS-7350R is chemical inconstant material induced reactive radical of surface of rubber and in case of making contact with Primer, start reaction slowly and form complete bonding strength.
- . Must be care about unsteady bonding strength by blooming and maintain right care.  
(under curing by oil blooming, sulfur blooming have an effect on bonding strength)
- . In case of using mold releasing agent(silicone, etc.) for mold release, must remove perfectly this before bonding work.  
(use fluorine releasing agent)

### EVA PHYLON

- . Problems in compound--- Much content of LDPP, APP, EDT, etc. have been effect on adhesion.(Much content of ZN-ST and stearic acid have bad effect on adhesion)

. Basic Compound(Phylon)

EVA(A)	70.0	Tb(kg/cm <sup>2</sup> )	35
EVA(B)	20.0	Eb(%)	250
IR	10.0	Tr(kg/cm)	21
ZNO-1	1.8	Hd(C)	55
ZN-ST	1.5	Compression Set	58
DCP	0.8	SP-TR(kg/cm)	3.2
JTR	6.0	SG	0.4
WS-990SP	8.0		
MgCO <sub>3</sub>	7.0		
TiO <sub>2</sub> (A)	1.8		
U-Blue(1/2)	0.1		
HA-100(1/1)	0.006		
PAL-50M	2.0		
T O T A L	128.006		

- . Prohibit releasing agent (silicone, organic fatty acid) and treatment in working EVA phylon, but in case of treatment, must wash surface by solvent(solvent and watersoluble fluorine releasing agent have no effect on adhesion)
- . Up to date, in case of EVA phylon no-buffing, treat UV, but can no buffing adhesion with general line work by improvement compound and adhesives.

### DIRECT INJECTION(POLYURETHANE SOLE)---- Rubber sole no-buffing work.

- . At compounding rubber sole, there are no problems, though forming wedge or middle sole with WS-7350R.(After treating with the WS-17NF on the surface of rubber no-buffed sole, coat it with the WS-7050S which is added 5% hardening agent, and do heat-treatment for 2 minutes at 100°C during the adhesion and then shoot PU liquid and form)

## ADHESIVES AND PRIMERS FOR NO-BUFFING

### Adhesives (PU, CR system)

Item	Appearance	Main Component	Solid Content(%)	Viscosity(cps)	Remarks
WS-273RH	yellow-transparent viscous liquid	CR reactives	23±2	6,000-6,500	CR system adhesive
WS-1625H	milky viscous liquid	PU denaturant	23±2	4,500-5,000	PU system adhesive
WS-7050S	transparent viscous liquid	PU denaturant	30±2	1,500-1,800	Direct injection

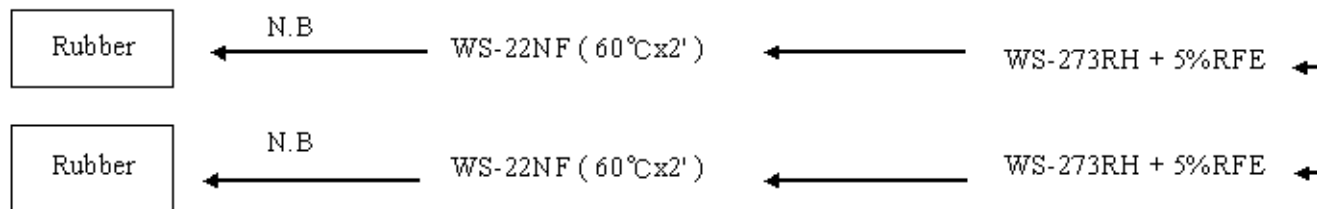
### Primers ( Rubber, EVA Sponge )

Item	Appearance	Main Component	Solid Content(%)	Viscosity(cps)	Specific Gravity	Remarks
WS-880EN	translucent liquid	CR reactives	8-12	below 50	0.830-0.840	EVA Sponge
WS-22NF	translucent liquid	CR reactives	3-5	below 20	0.845-0.855	Rubber
WS-503NF	citrine translucent liquid	CR reactives	3-5	below 20	0.845-0.855	PU, Leather
WS-17NF	A : white powder B : transparent liquid	Chorine compound	3-5	below 20	0.842-0.852	PU system adhesive (Rubber)
WS-32NF	transparent liquid	PU denaturant	3-5	below 20	0.850-0.860	PU system adhesive(PU)
WS-0087NF	transparent liquid	denaturant vinyl	3-5	below 20	0.875-0.885	Phylon
K-2	transparent liquid	denaturant vinyl	3-5	below 20	0.875-0.885	UV(PU)
K-7	transparent liquid	denaturant vinyl	3-5	below 20	0.880-0.890	EPDM Rubber ( 80 °C×10' )

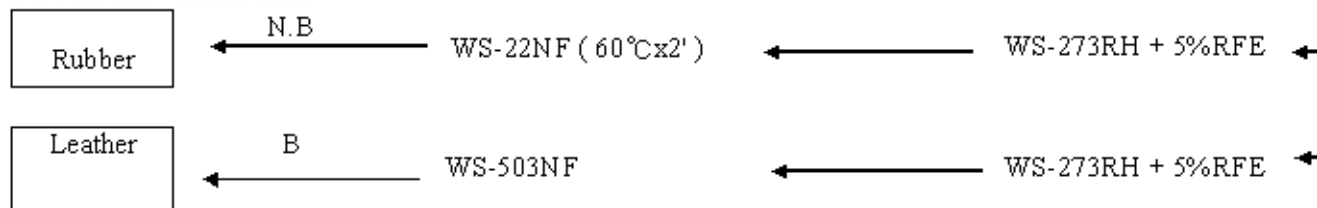
**BONDING METHOD** ( Compound added WS-7350R, WS-9990SP in rubber, phylon )

A. CR system

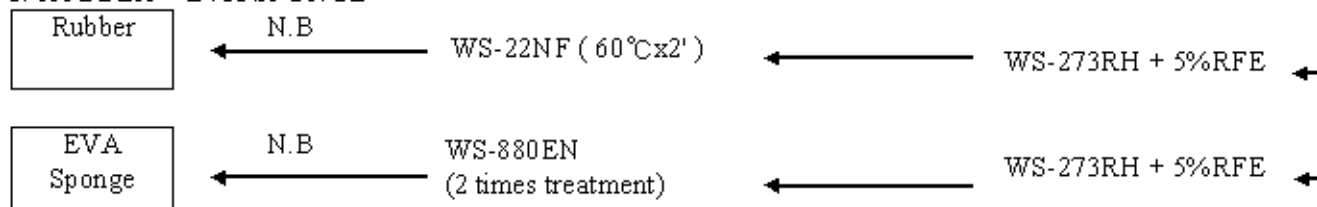
1. RUBBER + RUBBER( CR system)



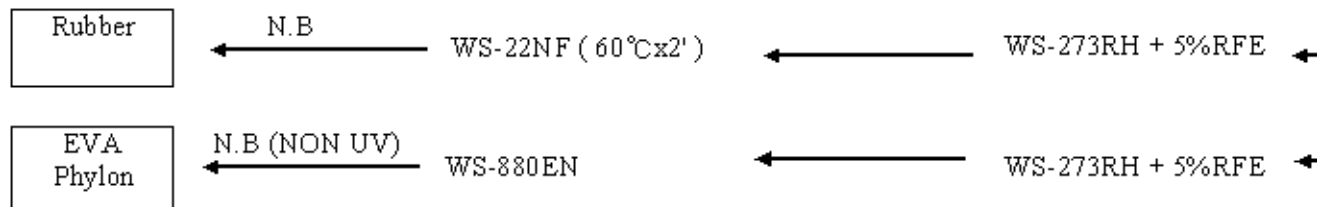
2. RUBBER + LEATHER



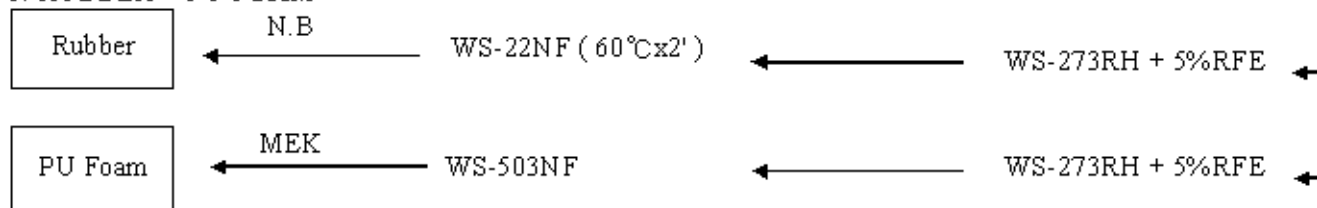
3. RUBBER + EVA SPONGE



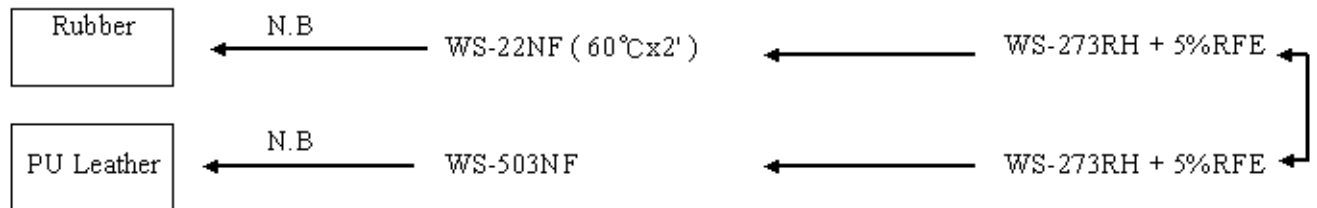
4. RUBBER + EVA PHYLON



5. RUBBER + PU FOAM



6. RUBBER + PU LEATHER



\* B : Buffing

\*F : Fluorescent Material Adhesives,

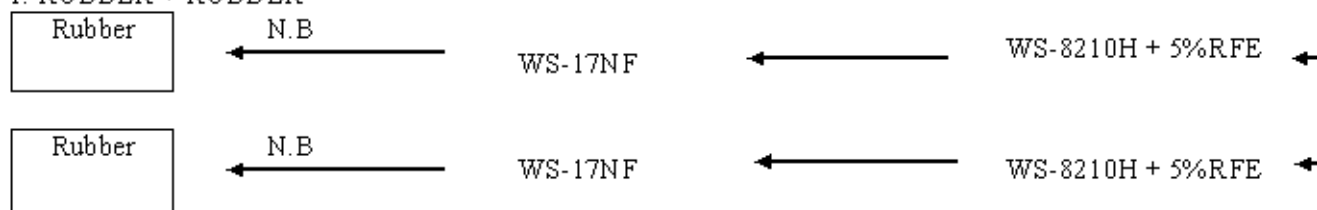
\* N.B : No-buffing

\* Primer : CR System - 60°C x 1'  
PU System - 70°C x 3'

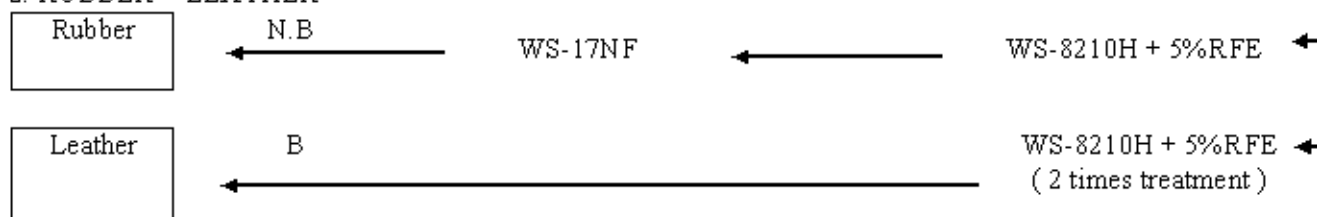
\*Adhesive: CR System - 60°C x 7' / 60°C x 10'  
PU System - 70°C x 7' / 70°C x 10'

B. PU system

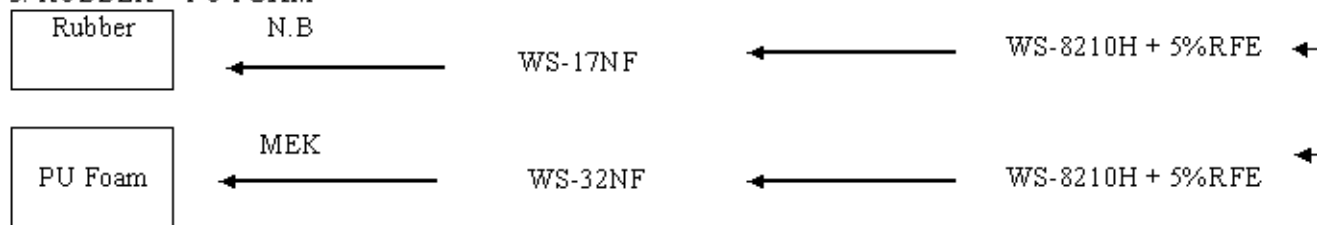
1. RUBBER + RUBBER



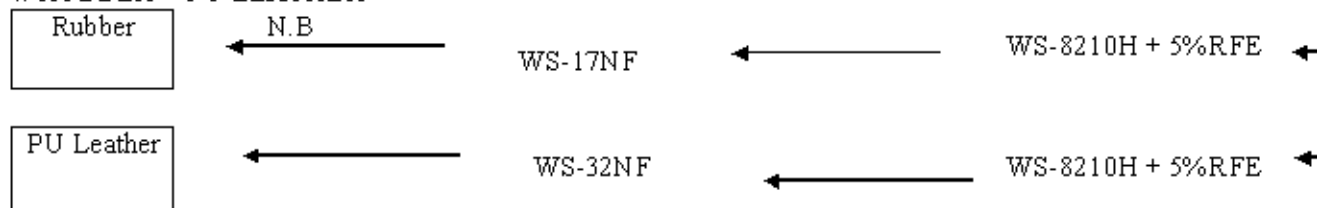
2. RUBBER + LEATHER



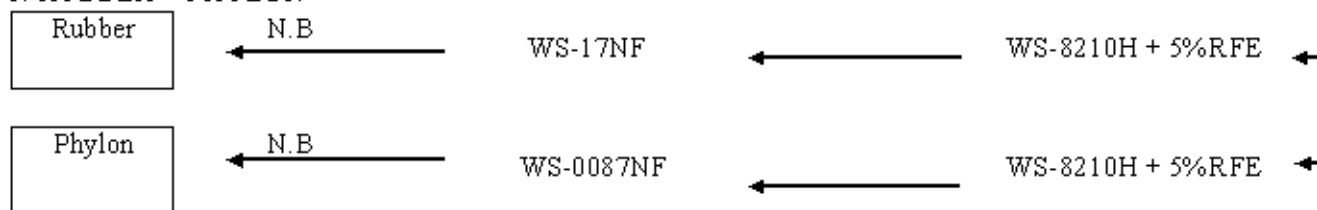
3. RUBBER + PU FOAM



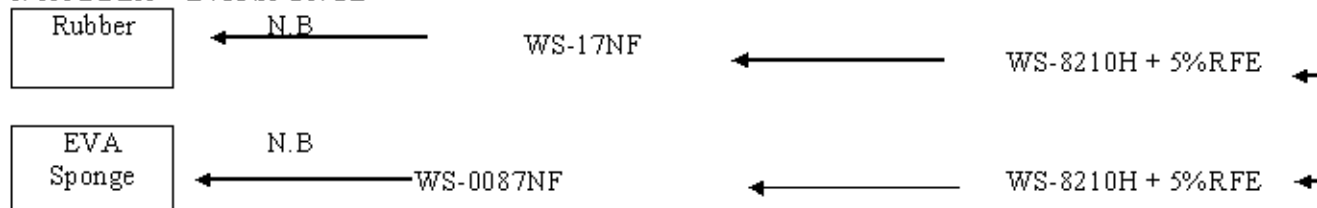
4. RUBBER + PU LEATHER



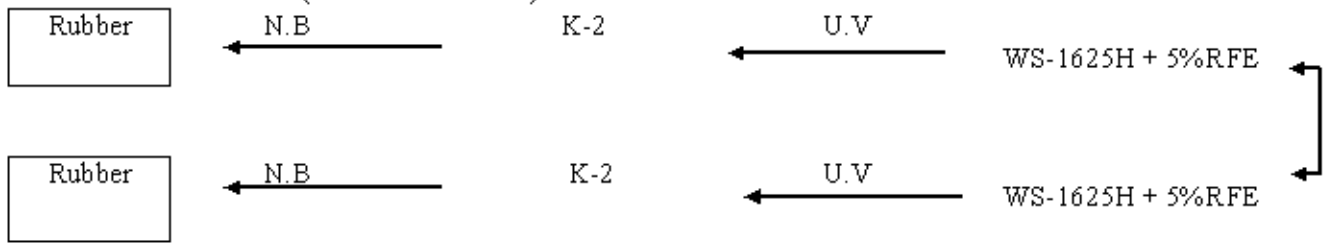
5. RUBBER + PHYLON



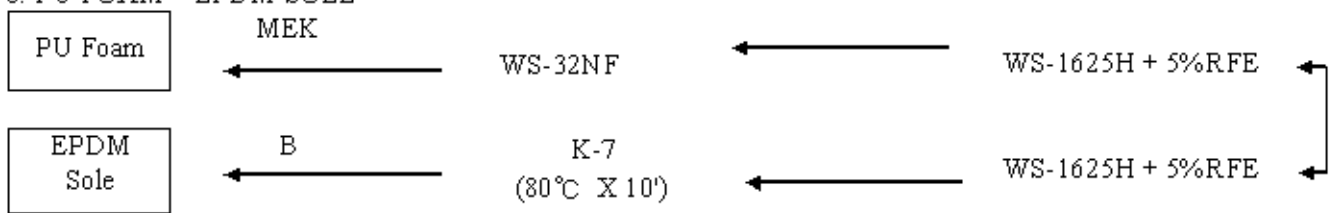
6. RUBBER + EVA SPONGE



7. RUBBER + RUBBER(Coated UV Primer)



8. PU FOAM + EPDM SOLE



**S.T.R.O.N.G**

370-82 SHINPYUNG-DONG SAHA-KU PUSAN KOREA

**MYUNG KWANG CHEMICAL IND.CO.,LTD.** TEL.82-51-206-7284

FAX.82-51-206-9048

**BS-2 MB ( ANTIBLOOMING AGENT )**

BS-2 MB, antiblooming agent developed first in Korea, can control all kinds of blooming(sulfur, wax, softner, accelerator and oil blooming) caused bad-appearance and bad bonding of all rubber products, and promote dispersion of polymer, filler and gas no effect on properties and bonding.

And also can control blooming of paint, resin and plastic.

BS-2 MB is a product developed in concert with Korea Institute of Footwear Technology(KIFT)

and can control blooming happened in condition of high temperature and humidity (Southeast Asia), and Patent Applied for Number 91-15367.

**PROPERTIES**

Appearance	pellet
Main component	Organic compound derivative
Softening Point(°C)	60-70
Acid value(average)	15.14
Staining	None
Storage	12 months(avoid a direct sunlight)

**USAGE**

- 5PHR to rubber

**TEST**

- Basic compound(S : 3, 5, 10PHR)

DIVISION	1	2	3
SMR- 5L	35	35	35
BR-01	40	40	40
SBR-1502	25	25	25
ZNO-1	5.0	5.0	5.0
ST/A	1.5	1.5	1.5
M	0.5	0.5	0.5
DM	0.5	0.5	0.5
Santol-D	2.0	2.0	2.0
P-Oil	7.0	7.0	7.0
HAF	60	60	60
S	3.0	3.0	3.0
*BS-2 MB	5.0	5.0	5.0
TOTAL	184.5	186.5	191.5
M-V	70	75	85
S-T	12'40"	12'10"	11'30"
C-S	4'30"	4'00"	3'32"

**- Test result**

Division	BS-2(NONE)	BS-2(5PHR)	BS-2(5PHR)	BS-2(5PHR)
Test No.	0	1	2	3
Rubber S	100 3	100 3	100 5	100 10
Test condition	D W N	D W N	D W N	D W N
2 DAYS	2 2 2	0 0 0	0 0 0	0 0 0
10 DAYS	3 3 3	0 0 0	0 0 0	0 0 0
20 DAYS	5 5 5	0 0 0	0 0 0	0 0 0
30 DAYS	7 7 7	0 0 0	0 0 0	0 0 0
40 DAYS	8 7 7	0 0 0	0 0 0	0 0 0
50 DAYS	10 10 10	0 0 0	0 0 0	0 0 0

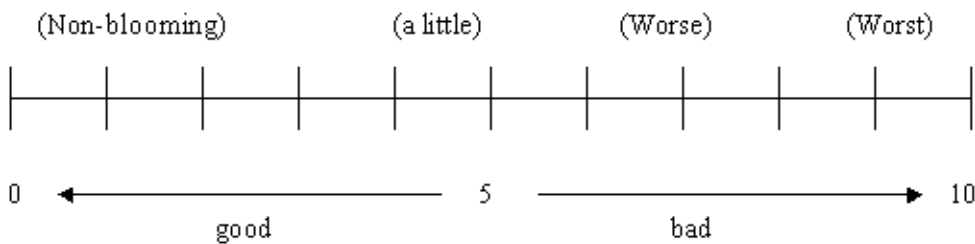
D : Drying condition : Av. Temp.16°C, Av. Hum.30%

W: Wetting condition: Av. Temp.16°C, Av. Hum.95%(in desiccator)

N : Normal condition : Av. Temp.20°C, Av. Hum.95%(in desiccator)

Press Temp : 150°C

Curing Time : 3min.



- In case of adding p-oil, wax. st/a 3, 5, 10PHR, generate blooming early.  
but can control blooming at adding BS-2(5PHR)

**PACKING**

- 20kgs net in paper bag

**S.T.R.O.N.G**

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## **SMELAR-800 (Deodorant Antioxidant)**

SMELAR-800,deodorant antioxidant, is organic compound composed of harmless food additives and has characteristic anti-oxidation and deodorization by chemical reaction.

### **9PROPERTIES**

<b>Properties Item</b>	<b>SMELAR-800</b>
Appearance	White Powder
Main component	Special organic compound
Specific Gravity	2.64-2.66
PH	-
Ash content(%)	68-72
Staining	None
Heat Stability	Stable
Storage	Cool, Dark place under 20℃

### **APPLICATION**

- . Rubbers, plastics, EVA sponges.
- . Rubber Arch Sponge for shoes.
- . Rubber parts for cars.
- . Use 3-5 PHR to rubber, resin.

### **PACKING**

- . SMELAR-800 : 20Kgs net in paper bag