Overview: GreenThinking® RT88 is a new type of rubber heat resistance, crosslinking agent, and anti-reversion agent, mainly used in rubber products made from natural rubber and synthetic rubber.

Featured Performance:

- Forms a stable crosslinking structure: RT88 participates in the formation of carbon-sulfur crosslinking bonds during the vulcanization process, which have the stability of mono-sulfide and di-sulfide bonds, as well as the flexibility of polysulfide bonds; RT88 can improve the thermal stability of vulcanized rubber, especially under over-vulcanization or high-temperature vulcanization conditions, maintaining the mechanical properties of rubber stable.
- Compensates for the breakage of polysulfide bonds: As part of a compensatory vulcanization system, RT88 can compensate for the loss of sulfur crosslinking bonds due to sulfur reversion, maintaining crosslinking density.
- Improves anti-sulfur reversion performance: By forming a thermodynamically stable flexible crosslinking structure, it significantly improves the anti-reversion performance of vulcanized rubber, reduces the breakage of polysulfide bonds during vulcanization, maintains crosslinking density, and significantly enhances the anti-sulfur reversion performance and anti-thermal aging performance of rubber.
- Reduces rolling resistance: In tire applications, RT88 helps to reduce rolling resistance and improve the durability and high-speed performance of tires.
- Improves bonding performance: RT88 can improve the bonding performance between rubber and steel cords, playing a key role in the durability and stability of tires.

Applications: Suitable for tires, shock absorbers, conveyor belts, transmission belts, wipers, rubber rollers, motor brackets, and other scenarios that require improved heat resistance and dynamic aging requirements.

Usage:

RT88 can be mixed in the rubber mixing mill or open mill.

It is recommended to add it in the final stage of mixing with sulfur and accelerators.

Recommended dosage:

- When used with sulfur and accelerators, the recommended dosage is 0.5-3.0 phr.
- If used alone (without sulfur), the dosage needs to be increased to 7.0 phr.

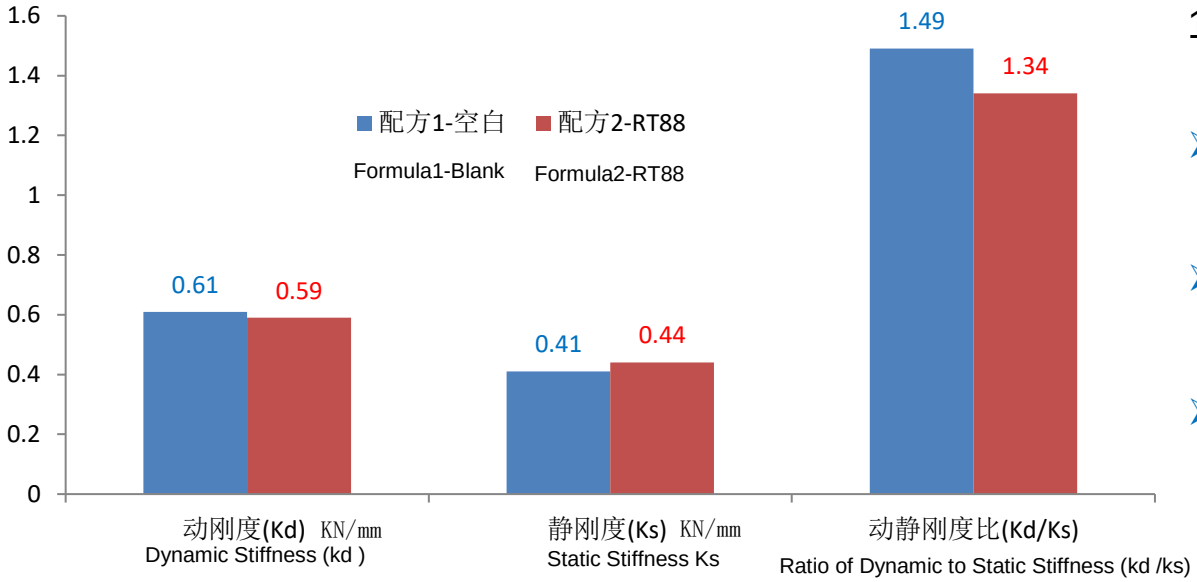
1Experimental formula description:

- Formula 1-Blank: This is the basic formula for shock-absorbing rubber products.

- Formula 2-RT88: On the basis of Formula 1, we added the anti-fatigue agent RT88, with a dosage of 0.8 phr.

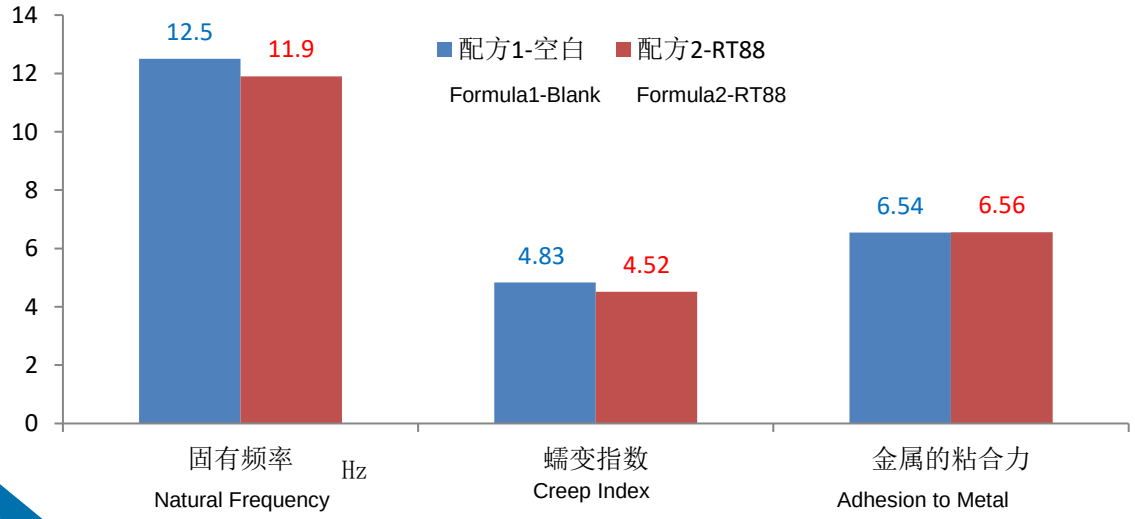
No.	Raw Material Name and Specification		Manufacturer	Formula 1-Blank	Formula-RT88
1	Natural Rubber	3L		100	100
2	Sulfur			1.8	1.8
3	Zinc Oxide			5	5
4	Stearic Acid			1	1
5	Accelerator CZ	CZ		1.3	1.3
6	Carbon Black N774	N774		70	70
7	Paraffin Oil			5	5
8	Antioxidant	4010NA		2	2
9	Antioxidant	RD		1	1
10	Paraffin			1	1
15	RT88 - Heat and Anti-Sulfur Reversion Agent		Powerflex		0.8
	Total			188.1	188.9

Rubber Heat Resistance and Crosslinking Agent, Anti-Sulfur Reversion Agent- GreenThinking® RT88



1. Shock Functionality Test:

- Dynamic stiffness reduction: 3.4%
- Static stiffness increase: 6.9%
- Dynamic/static stiffness ratio reduction: 10.1%



- Natural frequency reduction: 4.8%
- Creep index reduction: 16.5%
- Metal bonding strength: Essentially unchanged

Rubber Heat Resistance and Crosslinking Agent, Anti-Sulfur Reversion Agent- GreenThinking® RT88

No.	Test Items	Unit	Standard	Formula 1- Blank	Formula 2-RT88	
	Cure characteristics 160℃×6min					
1.1	Hardness, Shore A	Point	ASTM D2240	64	64	Rubber:Same day test
1.2	Tensile Strength	Mpa	ASTM D412	23.1	22.74	Rubber:Same day test
1.3	Elongation	%	ASTM D412	488	474	Rubber:Same day test
1.4	100% Modulus	Mpa	ASTM D412	3.64	3.91	Rubber:Same day test
1.5	Gravity	g/cm3	GB/T 533	1.158	1.17	Rubber:Same day test
1.6	Compression Set（160℃×12min）			54	58.5	Rubber:Same day test
2	air aging70℃×72小时					
2.1	Hardness, Shore A	Point	ASTM D573	68	67	
2.2	Tensile Strength	Mpa		21.75	22.01	
2.3	Elongation	%		403	438	
	Hot air aging 70℃×72 hours (rate of change)					
2.4	Hardness, Shore A	Point	ASTM D573	4	3	
2.5	Tensile Strength	%		-5.8%	-3.2%	
2.6	Elongation	%		-17.4%	-7.6%	
3	Compression Set 70℃×24h （Compressed by 25%）	%	GB/T7759	18.09	16.09	
No.	Test Items	Unit	Standard	Formula 1- Blank	Formula 2-RT88	
1.1	Hardness, Shore A	Point	ASTM D2240	65	64	Rubber : tested after 6 days
1.2	Tensile Strength	Mpa	ASTM D412	21.7	21.9	Rubber : tested after 6 days
1.3	Elongation	%	ASTM D412	404	389	Rubber : tested after 6 days
2	Hot air aging 100℃×72 hours					
2.1	Hardness, Shore A	Point	ASTM D573	71	69	
2.2	Tensile Strength	MPa		16.3	18.5	
2.3	Elongation	%		251	293	
	Hot air aging 100℃×72小时(Hot air aging)					
2.4	Hardness, Shore A	Point	ASTM D573	6	5	
2.5	Tensile Strength	MPa		-24.9%	-15.5%	
2.6	Elongation	%		-37.9%	-24.7%	