



全球生物质和化学新材料解决方案提供商

SHENGQUAN

圣泉集团



2024
www.shengquan.com

01

关于圣泉

GROUP INTRODUCTION





1979

Company founded

1985

Tang Yilin was appointed as factory manager.

1987

Start production of furan resin

1988

start production of furfural

1991

Benzene free No-bake furan resin was invented.

1992

Start phenolic resin production

1994

company was reformed into shareholding system

1997

Joint venture with Hepworth mineral & chemicals UK

2002

The company was awarded as the "National Key leading enterprise of agricultural industrialization"

2003

The company has become the world's largest furan resin producer

2005

The company has become the largest phenolic resin producer in China

2007

The company has become the largest supplier of ceramic foam filters in Asia

2010

The company's R&D center has been identified as a national enterprise technology center

2011

The company was listed in "Top 500 Private Enterprises in China". Phenolic hollow microsphere produced by the company was successfully applied to the re-entry capsule of Shenzhou spacecraft for the first time

2012

First generation technology about biomass comprehensive utilization succeeded

2013

Phenolic resin workshop with the world's largest monomer capacity of 200,000 tons/year was completed and put into operation

2014

The company officially registered in the National Small and medium-sized Enterprise share transfer system.

2015

The company was awarded the title of National Technology Innovation Demonstration Enterprise, which was the first private enterprise in Jinan to win this honor

2016

A professional report about innovation, research and development of biomass industry by GM Tang Yilin was presented to Premier Li Keqiang

2017

Mr. Tang Diyuan officially assumed office as president of the group

2019

Straw refining technology was applied in Daqing plant.

2020

Personal protective equipment like facial mask were produced, since breakout of COVID-19.

2021

Listed as a public company on the Main Board of the Shanghai Stock Exchange (605589.SH)

Another phenolic resin plant with an annual output of 230,000 tons was put into production

2022

Daqing biomass refinery project was finished and commissioned.

【SQ GROUP】

Headquartered in Jinan, Shandong Province, China, SQ exports its products to more than 50 countries, besides domestic market.

Overseas subsidiaries in Germany, Spain, Russia, India, Brazil and other countries can provide good service for local markets.

1979

Established

200+
hectare

Area covered

4000+

Employee

TOP
500

Top 500 private company in
China

1.6
Billion USD

Total assets



【SQ R&D】



18

Research institutes

30

world leading
experts

400+

R&D personnel

50
million USD

R&D investment

02

产业介绍

BUSINESS LAYOUT





Phenolic resin division

Founded in 1997 as a Sino-UK JV between Hepworth Minerals & Chemicals and Jinan Shengquan Group (SQ)

International standard process equipment / techniques
European testing equipment & Procedures.

The largest industrial phenolic resin producer in China

Sales volume reached 400,000 MT in year of 2023.

Production capacity is 600,000 MT/Year.



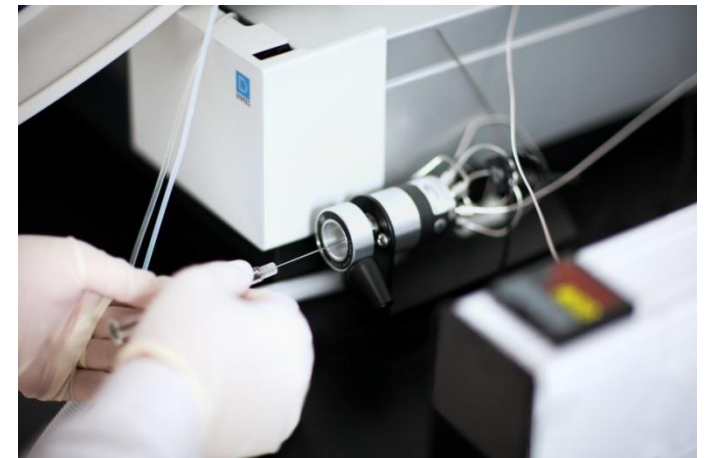


圣泉集团
SQ GROUP

Green plant

Harmless RM, Clean production, Recycling waste, low carbon release





SYSTEM CERTIFICATION :

- ISO 9001
- ISO 14001
- OHSAS 18001
- SO/IEC 17025
- TS16949=IATF16949
- GJB9001B-2009
- GB/T2333
- DIN6701
- ISO22163

03

Phenolic resin for rubber industry



RT1 series

Tackifying resin

RT2 series

Reinforcing resin

RT3 series

Resorcinol
formaldehyde bonding
resin

RT4 series

Curing resin

RT5 series

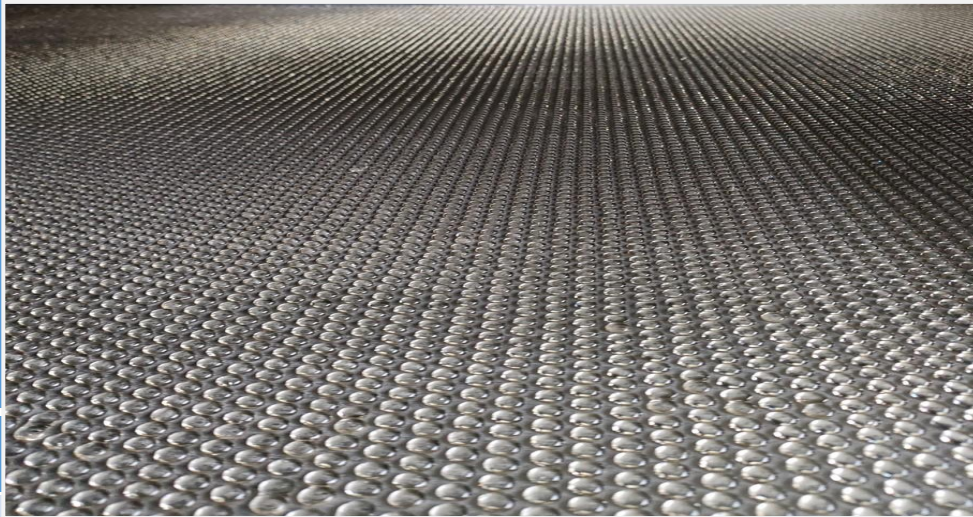
Functional resin

RT7 series

Adhesive resin for tyre
fabrics

RT6 series Biological based functional auxiliaries

RT1 series: tackifying resin



RT2 series: reinforcing resin



Straight phenolic resin



CNSL modified resin



Tall oil modified resin



RT3 series: Resorcinol formaldehyde bonding resin



RT4 series: Curing resin

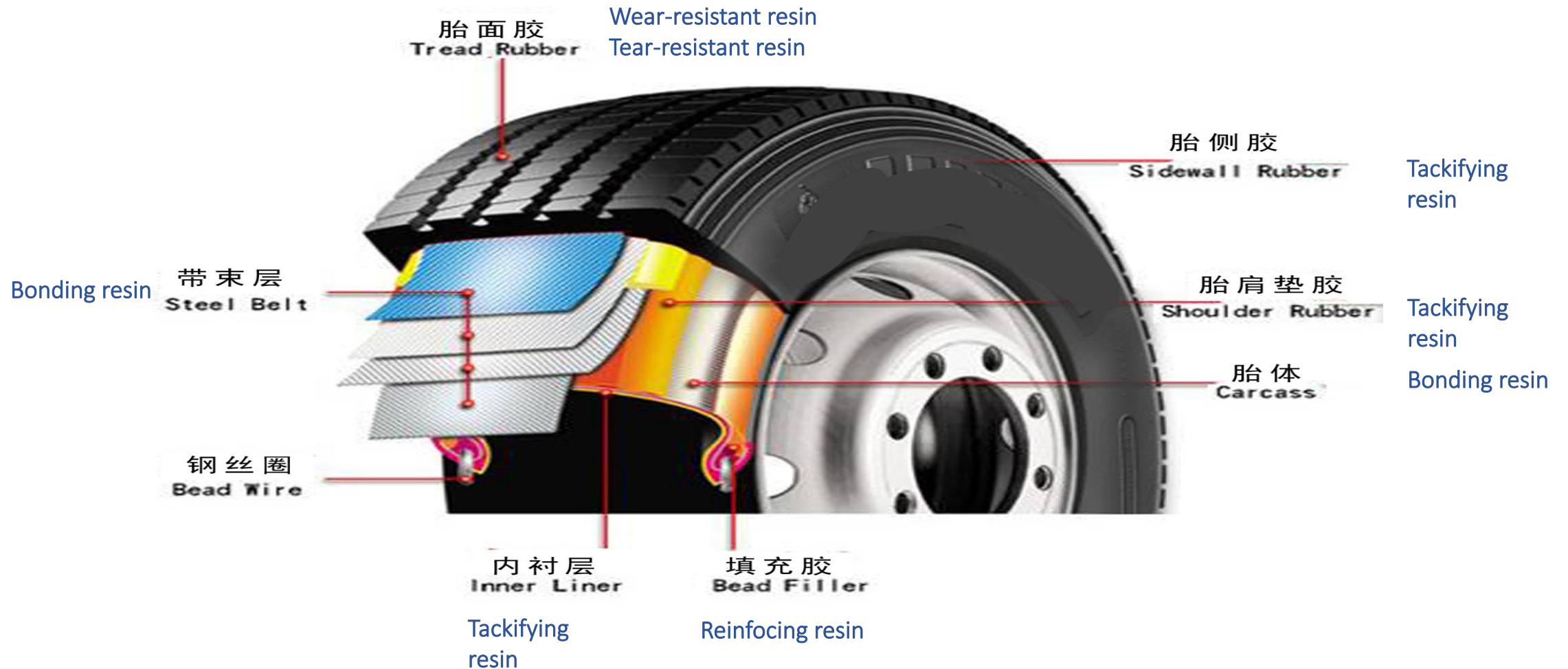


RT5 series: Functional resin for tread



RT7 series: Adhesive resin for tyre fabrics

Resin types applicable to all-steel Radial Tires



RT1 series

Tackifying resin





■ 辛基酚甲醛增粘树脂
P-Teroctyl Phenol Formaldehyde
Tackifying Resin

■ 叔丁酚甲醛增粘树脂

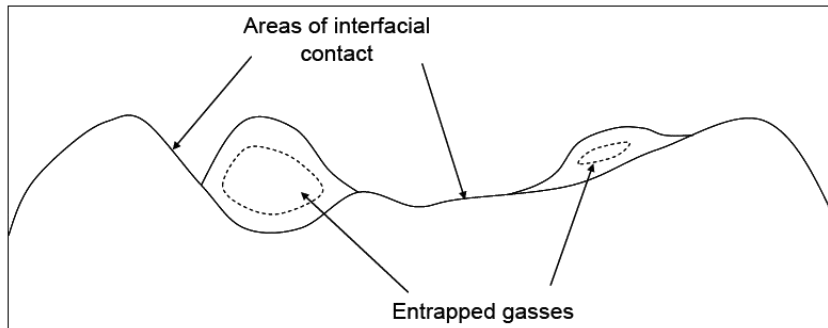
P-Tert-butylphenol Formaldehyde
Tackifying Resin

$$r = r^d + r^p + r^h$$

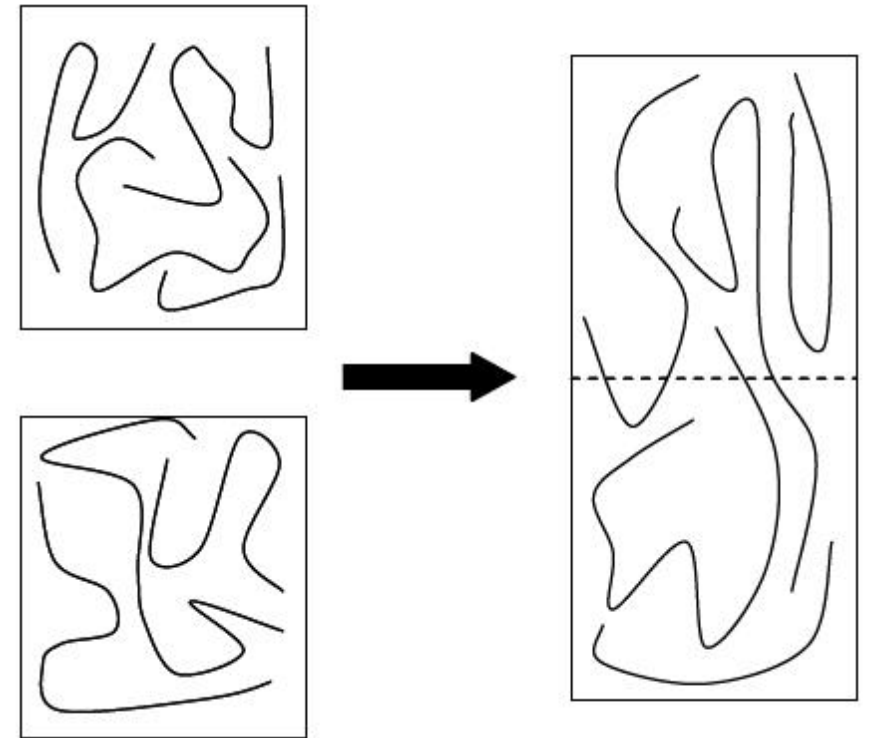
■ r^d Dispersion

■ r^p Polarity

■ r^h Hydrogen



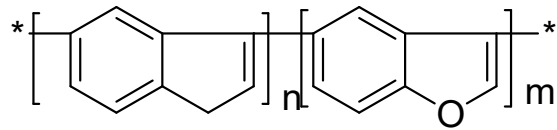
contact area theory



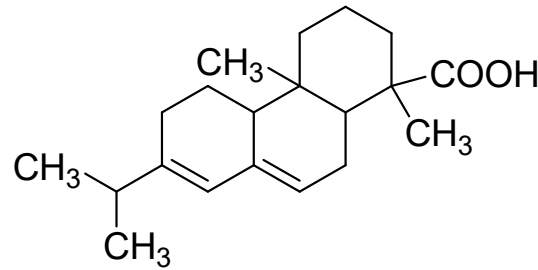
Interface Diffusion Theory

Feature of Tackifying Resin

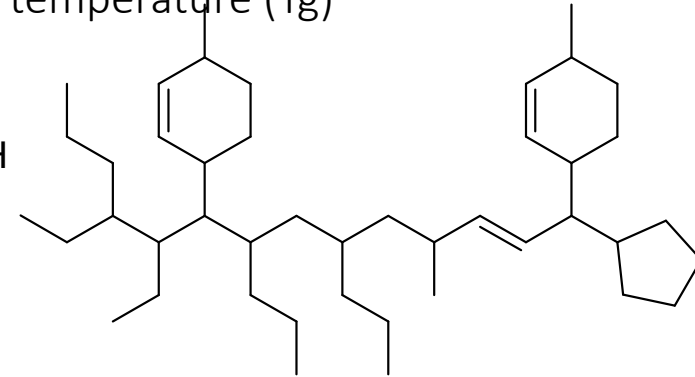
Low molecular weight compounds with high glass transition temperature (T_g)



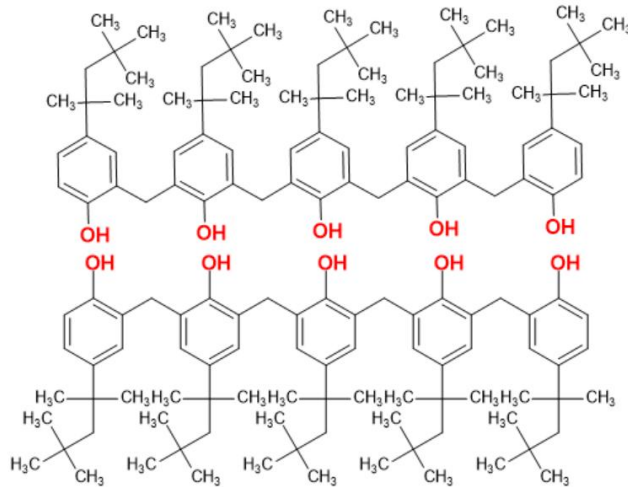
coumarone-indene



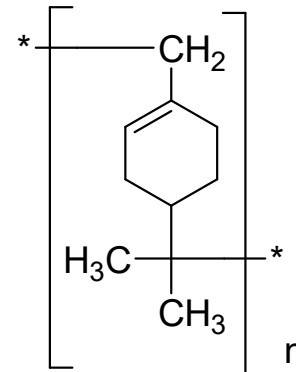
Rosin



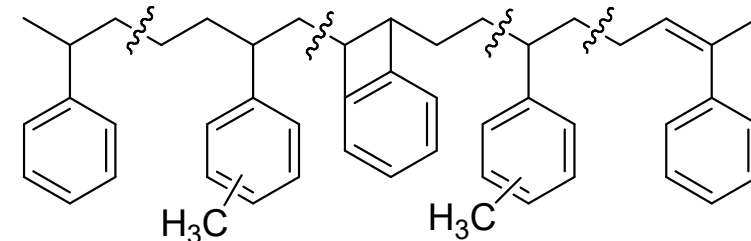
C5



alkylphenolic resin

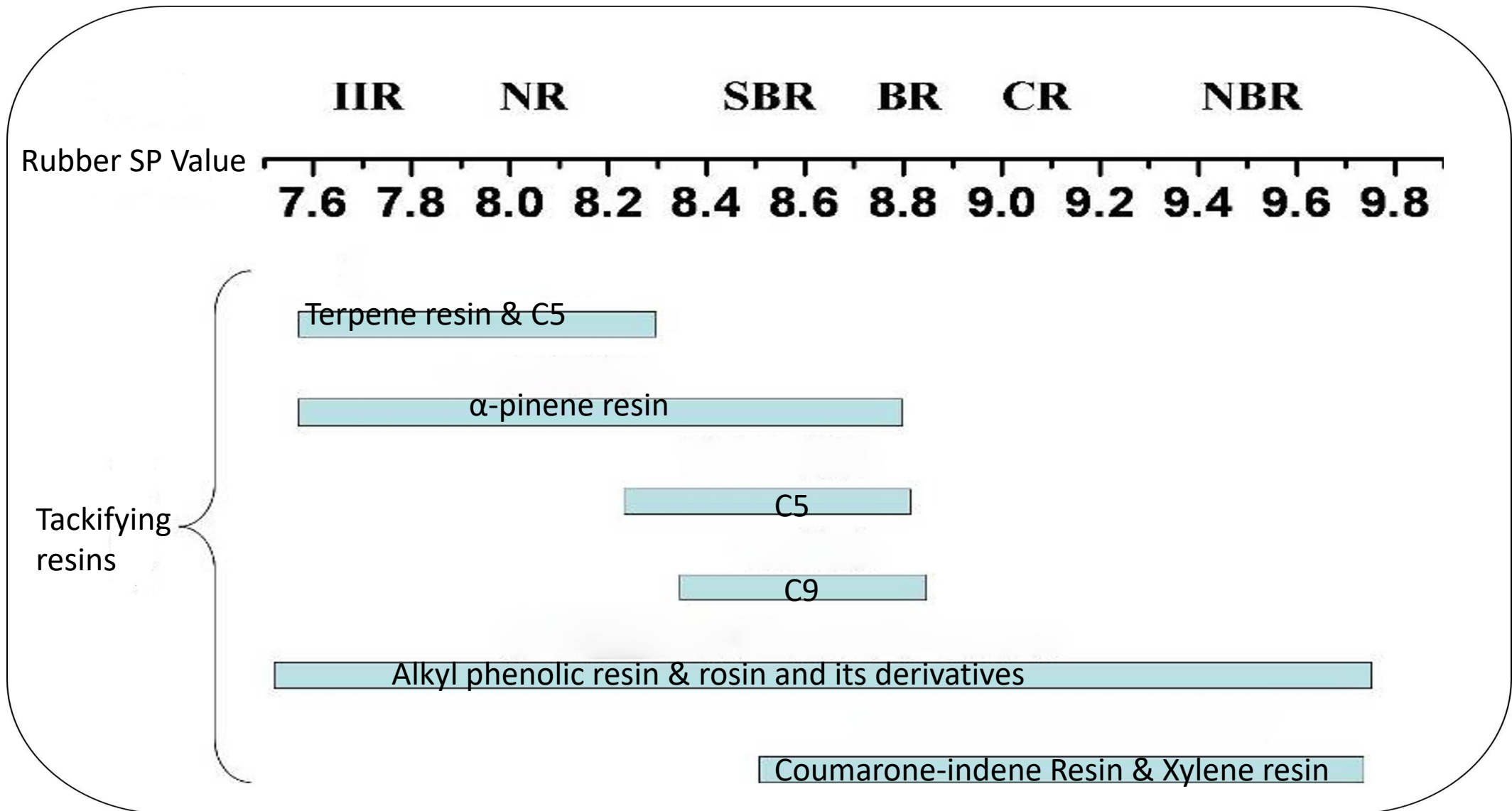


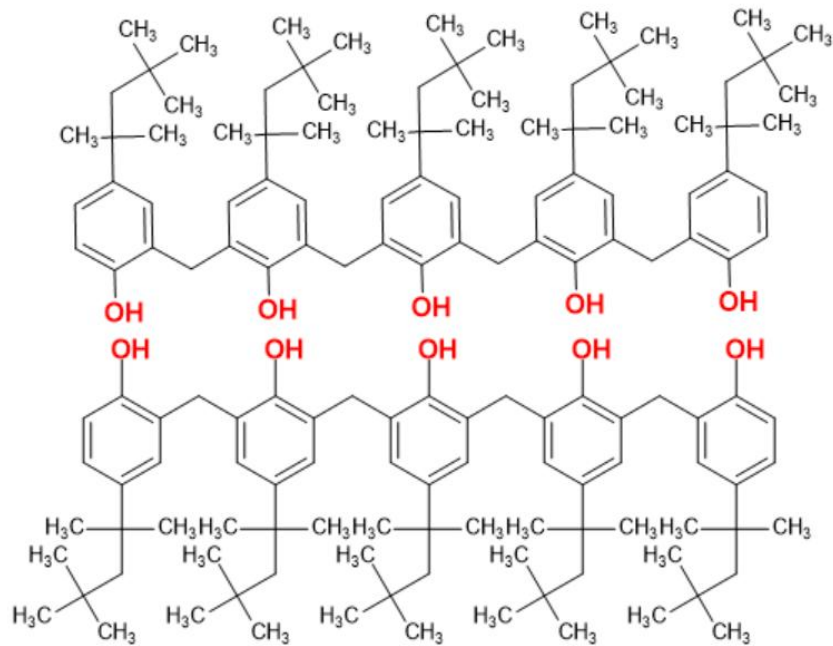
terpene resin



C9

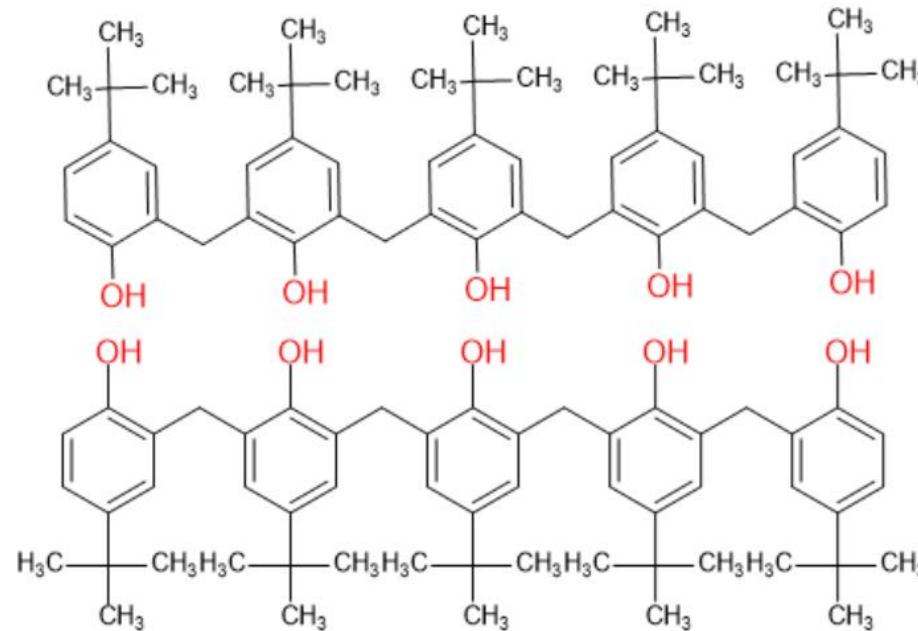
Tackifying resin Comparasion





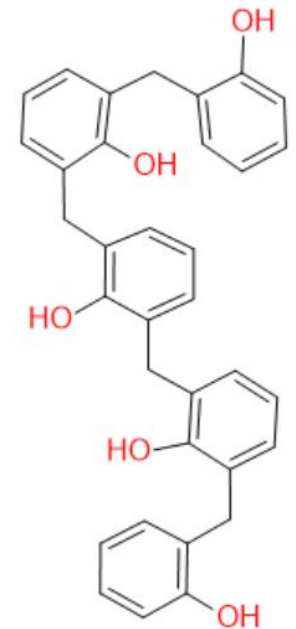
P-Teroctyl Phenol Formaldehyde
Tackifying Resin

RT1101



P-Tert-butylphenol Formaldehyde
Tackifying Resin

RT1204

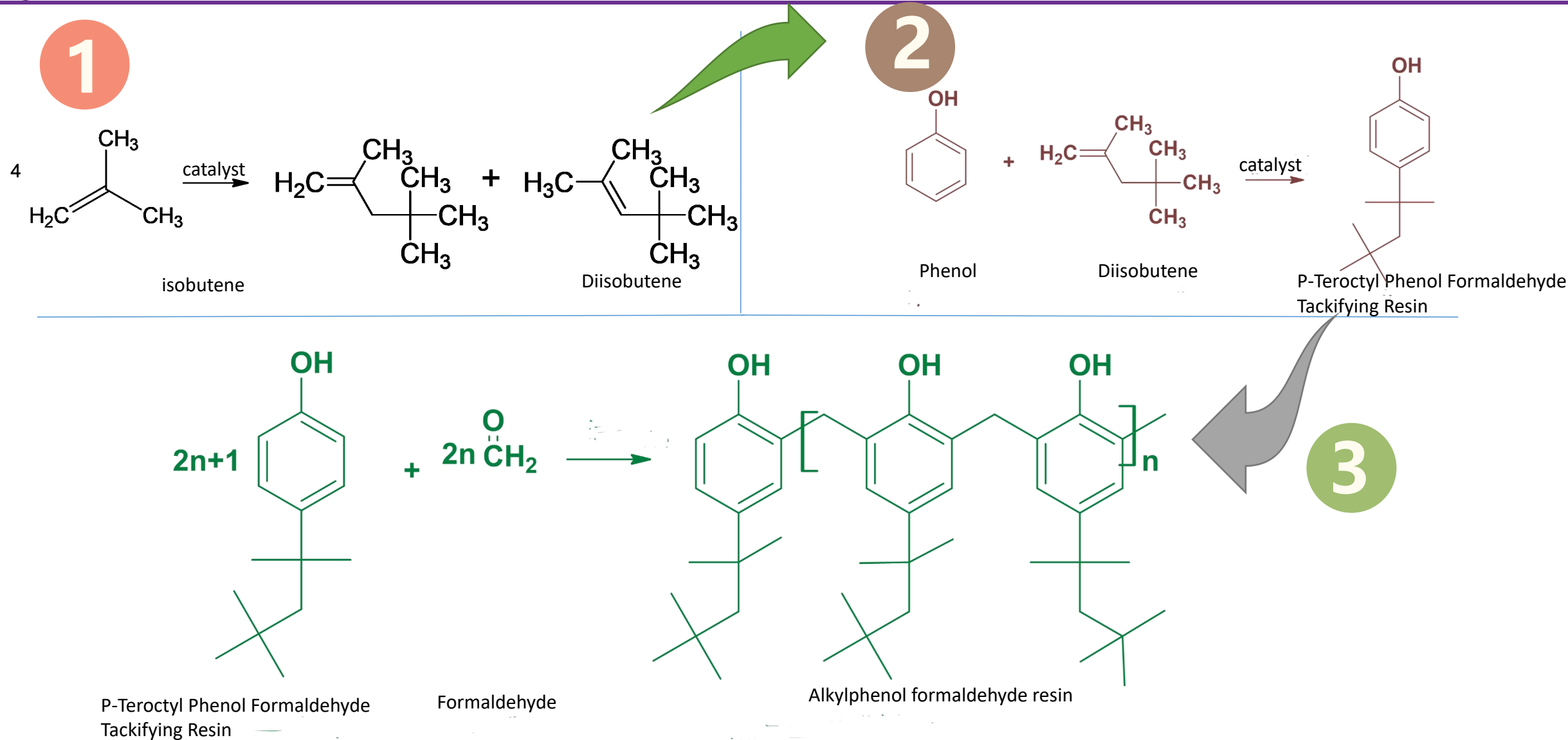


Reinforcing Resin

RT2101

Resin code	Note	Features	Applicable to tyre parts
RT1101 & RT1101H	General type of P-Teroctyl Phenol Formaldehyde Tackifying Resin (203)	RT1101 has feature of lower VOC, no resin odor after usage.	Inner liner
RT1102			Sidewall
RT1105			Tread
RT1103	Super Tackifying Resin	RT1101 >10ppm,14pcz equivalent 1: >10ppm,45pcz equivalent 2: >50ppm,71pcz	Shoulder
RT1104			
RT1101S	Cost-effective tackifying resin		

Viscosity: RT1103,RT1104>RT1105>RT1101,RT1102,RT1101S



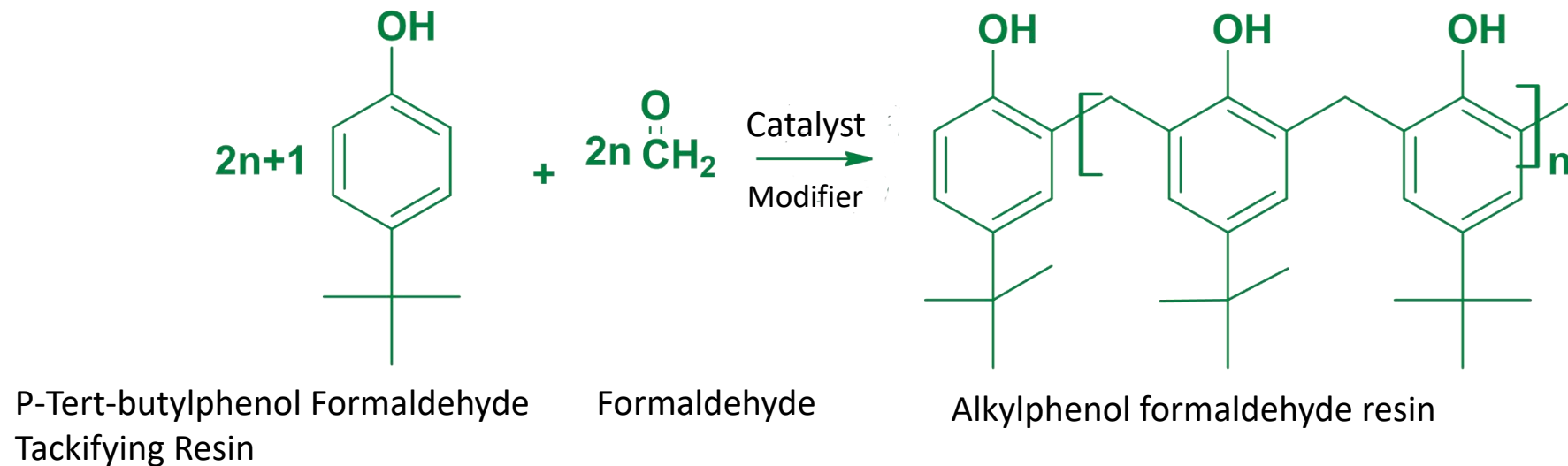
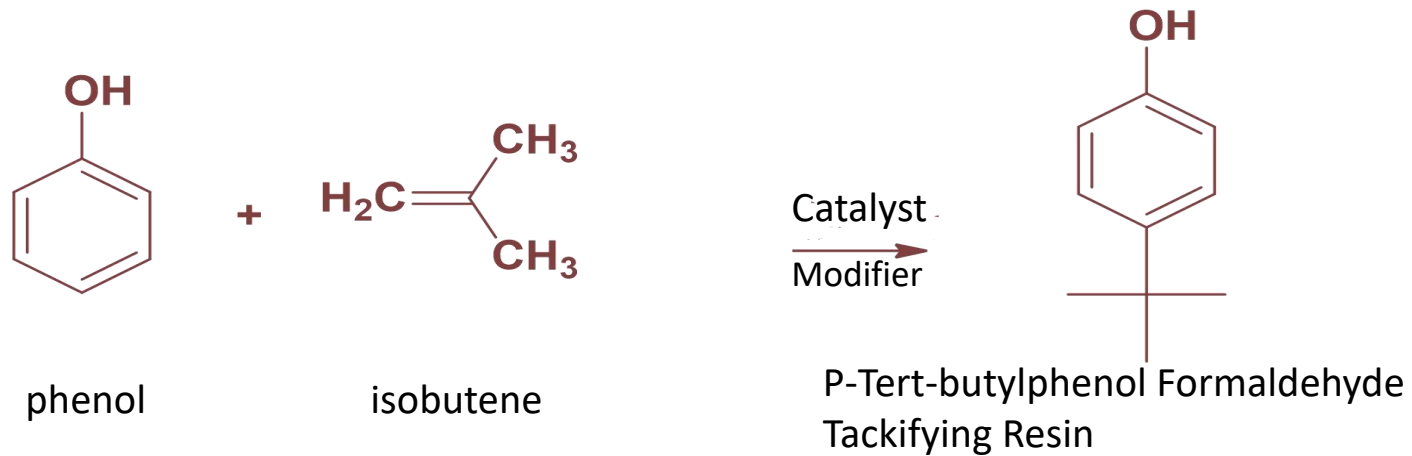
Feature of Tackifying Resin

Product	Soft point	Molecular weight	Free phenol	Thermal performance	Viscosity
RT1102	90	1300+	< 4%	★★★★★	★★★
RT1101	98	1400+	< 2.5%	★★★★	★★★
RT1103	112	2200+	< 1.7%	★★★	★★★★
RT1104	129	3000+	< 1.5%	★★★	★★★★★
RT1101LP	96	2300+	< 0.5%	★★★★★	★★★

Resin code	Note	Features	Applicable to tyre parts
RT1204	General type of butylphenol formaldehyde tackifying resin (204)	Unmodified, general butyl tackifying resin	Inner liner Sidewall Tread Shoulder
RT1560 RT1205	Super tackifying Resin	Alkylphenol Super Tackifying Resins	
RT1204S RT1204H RT1207	Cost-effective tackifying resin	Modified General Tackifying Resins	

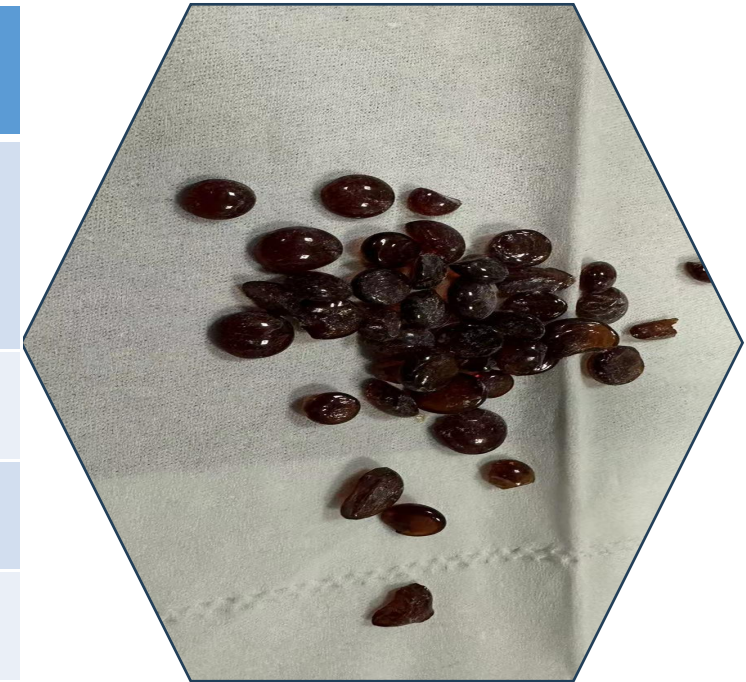
Chemical structure of Butylphenol Resin

1



2

Specification	RT1205	BSF koresin
Appearance	Brown yellow to brown	Black color
Soft point, °C	135-145	135-150
Free phenol, %	1.15	1.04
Infrared similarity, %	100	95.81



Mooney scorch

Item	t5/min	t35/min
BLANK	21.05	25.87
KORESIN	20.4	23.7
RT1204S	21.53	24.53
RT1205	19.95	23.27

Vulcanization performance

Item	ML/dNm	MH/dNm	t30/min	t60/min	t90/min
BLANK	3.98	19.87	0.97	1.32	2.08
KORESIN	3.27	15.24	1.02	1.35	2.12
RT1204S	3.19	15.13	1.03	1.37	2.15
RT1205	3.28	14.91	1.02	1.36	2.12

Self-adhesive

Item	BLANK	KORESIN	RT1204S	RT1205
3 days	18.19	52.756	49.058	52.507
5 days	18.031	51.905	51.772	51.882



Mechanical properties of vulcanized rubber(160°C*20min; 70°C*72h aging test)

ITEM	BLANK	KORESIN	RT1204S	RT1205
tensile strength/MPa	20.55	20.2	19.33	20.02
elongation at break/%	467.67	578.82	596.29	575.71
100% stress at definite elongation/MPa	2.04	1.49	1.41	1.56
200% stress at definite elongation/MPa	5.92	4.09	3.65	4.21
300% stress at definite elongation/MPa	11.43	8.32	7.41	8.31
SHAO A hardness	58.00	54.00	54.00	54.00
Change rate of aging tensile strength %	-5.21	-4.55	-0.85	-7.99



Thermal properties of vulcanized rubber(160°C*20min)

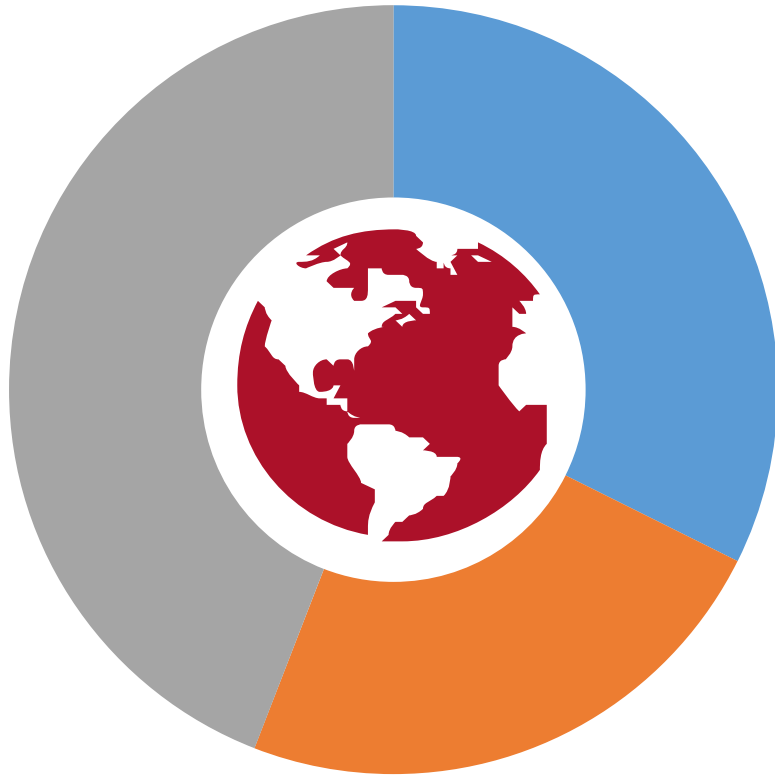
Item	BLANK	KORESIN	RT1204S	RT1205
Heat generated at the bottom of the compressed specimen°C	34	41	50	41
DMA(tan0°C)	0.1839	0.2299	0.2220	0.2292
DMA(tan60°C)	0.1472	0.1835	0.2021	0.1849
RPA(tanδ2.109%)	0.430	0.456	0.474	0.458
RPA(tanδ4.149%)	0.440	0.461	0.480	0.463
RPA(tanδ6.188%)	0.448	0.464	0.482	0.466

RT2 series

Reinforcing resin



2. Reinforcing Resin



■ 纯苯酚甲醛补强树脂

Straight phenol formaldehyde resin

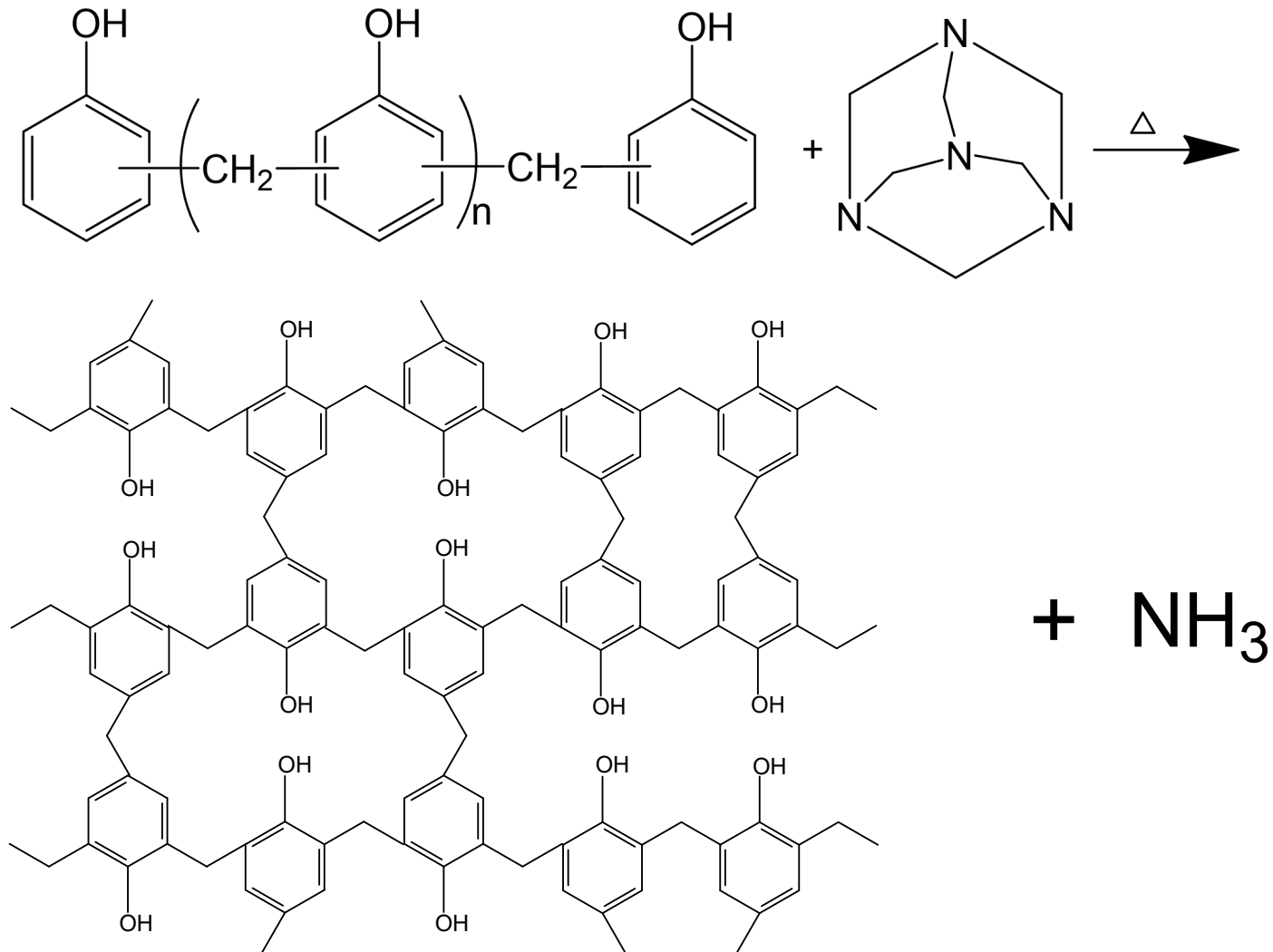
■ 腰果油改性补强树脂

CNSL modified phenolic resin

■ 妥尔油改性补强树脂

Tall oil modified phenolic resin

Crosslinking Reaction between Phenolic Resin and Curing Agent



Reinforcing Resin

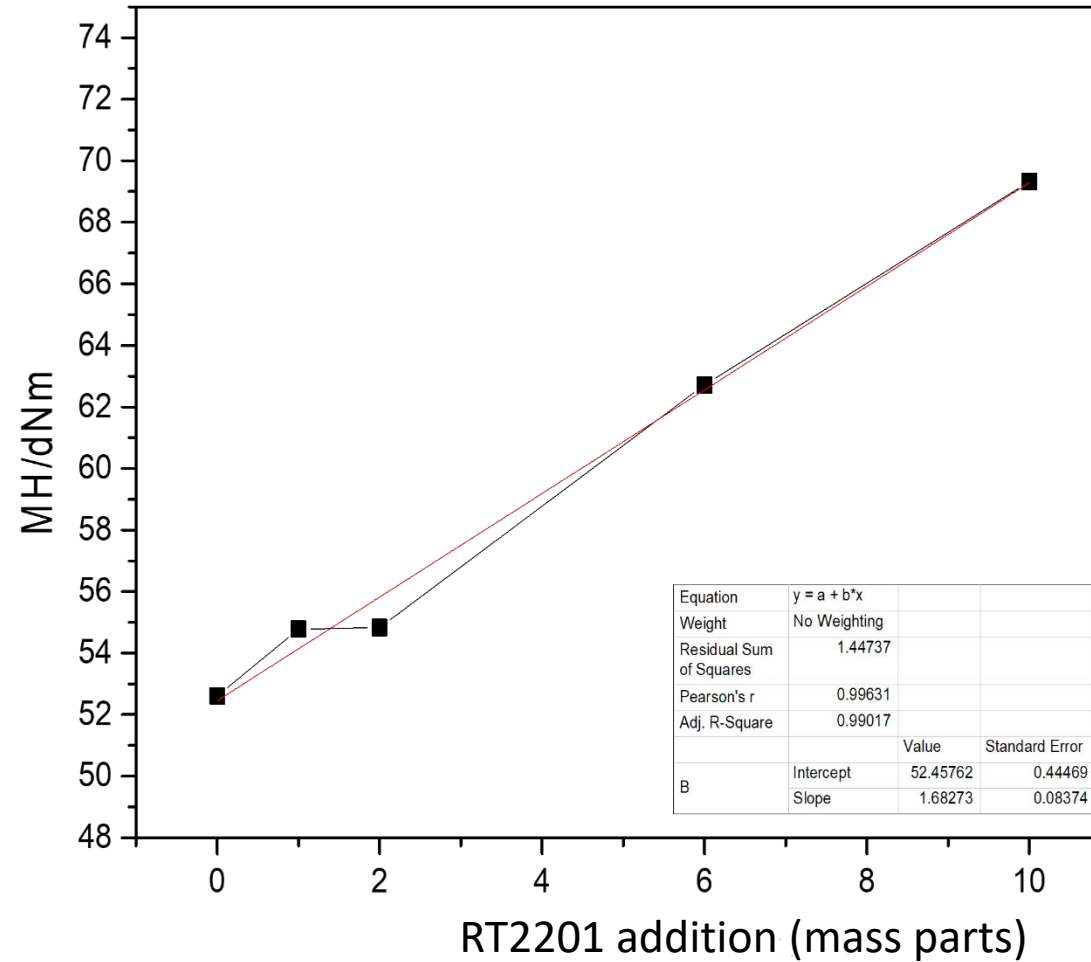
Resin code	Note	Features	Applicable to tyre parts	Applicable to rubber products
RT2301 RT2303	Straight phenolic resin	Simple components; easy quality control	All-steel & Half-steel	Shoe; sealing strip; sealing ring; etc
RT2101 RT2103	Tall oil modified resin	Long vulcanization time and scorch time; Good processing safety	All-steel	
RT2201	CNSL modified resin	High modulus; The best reinforcing performance	Half-steel	
RT2202	CNSL modified resin	High modulus; The best reinforcing performance	Powder resin with HMT; Applicable to rubber products	
RT2401	Self reacting reinforcing resin	No need of curing agent; Environment friendly	Tyre & rubber products	

ITEM		1	2	3
		1	2	3
viscoelasticity DMA test condition- 40°C—100°C	Tg (°C)	-39.28	-39.71	-39.32
	tanδ (0°C)	0.1501	0.1423	0.1330
	tanδ (60°C)	0.1802	0.1786	0.1606
RPA2000	tanδ (2.109%)	0.392	0.379	0.332
	tanδ (4.149%)	0.442	0.445	0.405
	tanδ (6.188%)	0.449	0.463	0.428

Effect of reinforcing resin with different molecular weights on properties of compound

Vulcanization characteristics

Item	RT2201 Dosage, phr				
	0	1	2	6	10
ML/dNm	4.79	5.05	4.97	5.35	4.91
MH/dNm	52.61	54.78	54.83	62.72	69.32
Ts2/min	3.62	3.3	3.05	2.01	1.39
t10/min	4.48	4.08	3.74	2.69	2.15
Tc90/min	14.44	14.23	13.98	13.91	15.05
REV97/min	32.2	32.76	34.75	46.58	51.11



Changes of MH with the increase of RT2201 addition

RT3 series

Bonding Resins



3. Bonding Resins



■ 间苯二酚
Resorcinol

■ 间苯二酚甲醛树脂
Resorcinol formaldehyde resins

■ 苯乙烯-间苯二酚甲醛树脂
Styrene-resorcinol formaldehyde resins

■ 间苯二酚/苯酚甲醛树脂
Resorcinol/Phenol formaldehyde resins

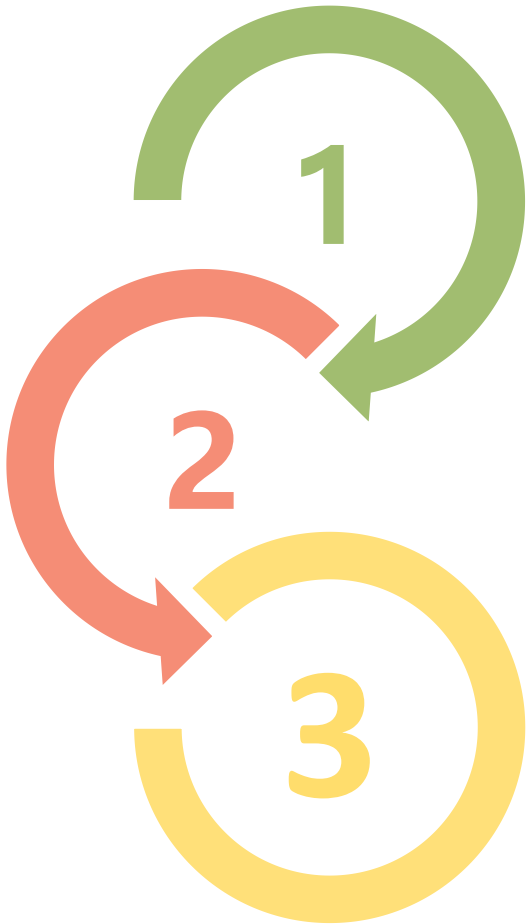
■ 其他改性间苯二酚/苯酚甲醛树脂

Modified resorcinol/phenol formaldehyde resins

How does bonding resin work?

A large number of three-dimensional networks can be formed by resin and rubber at the vulcanization temperature. These networks are distributed on the interface of the bonding layer and the rubber, which leads to a dense and hard protective layer composed of resin and rubber. This layer brings benefits including:

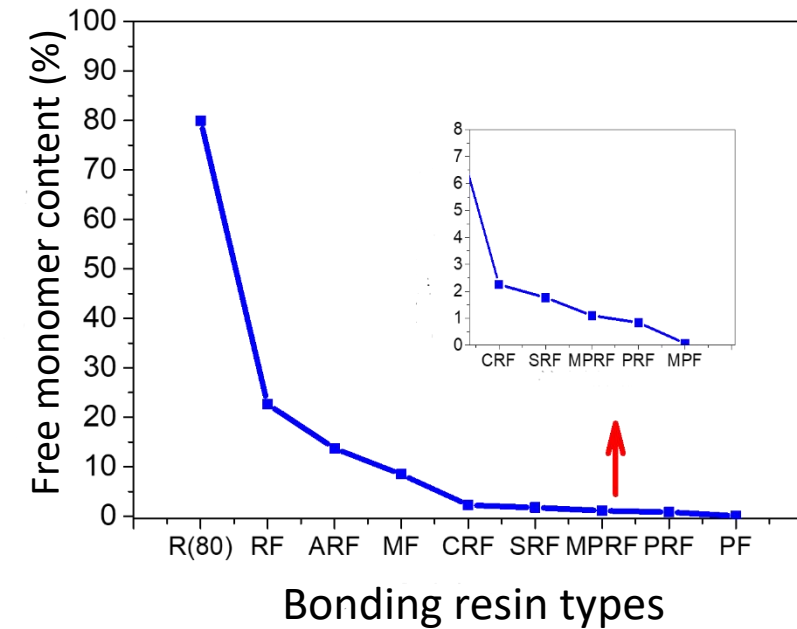
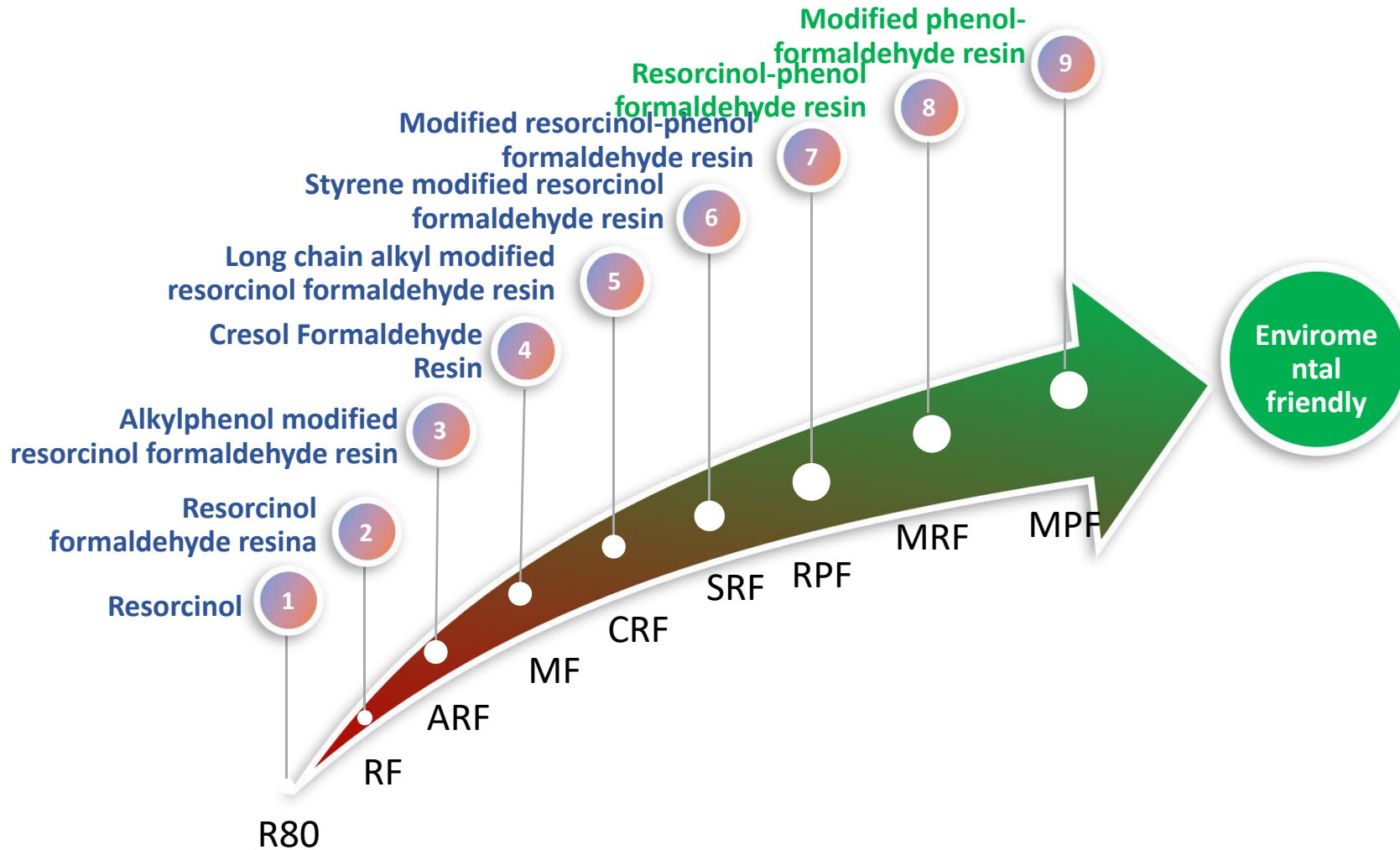
- The branched sulfide bonding layer inserted into the rubber compound was strengthened.
- In the dynamic situation, physical property differences between the steel wire and the rubber compound and the force received by the tire can be conducted and transitioned.
- Water vapor and other substances can be inhibited to penetrate the bonding layer.



Bonding resin

Resin code	Note	Applicable to tyre parts
RT3101 RT3102	Styrene modified resorcinol resins	Belt ply
RT3103 RT3103A	Modified Phenol/resorcinol bonding resin	Tyre carcass
RT3104	Phenol formaldehyde bonding resin	Reinforcing layer
RT3200	Unmodified resorcinol formaldehyde bonding resin	
RT3201	Alkyl phenol modified resorcinol bonding resin	
RT3301	M-cresol bonding resin	

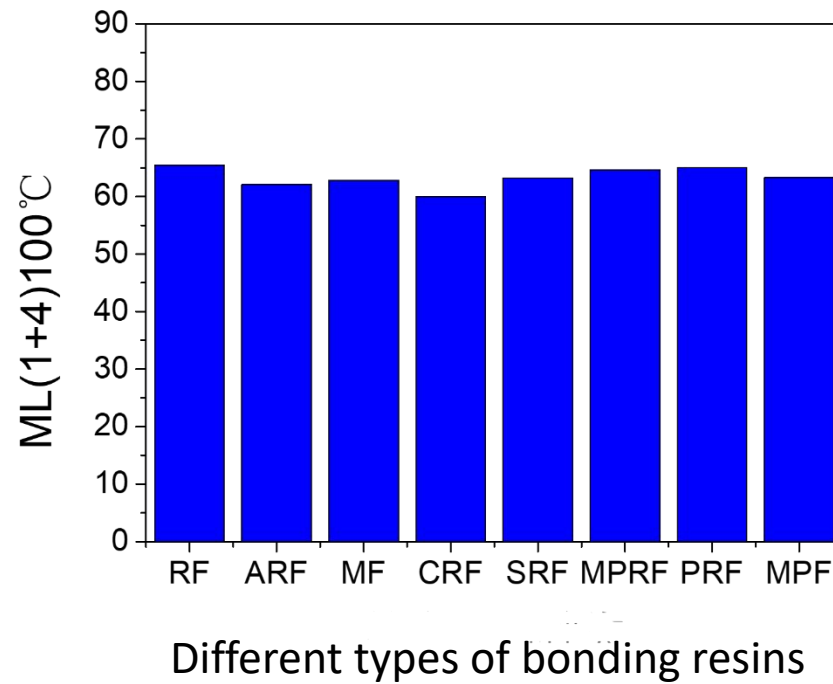
Bonding resin



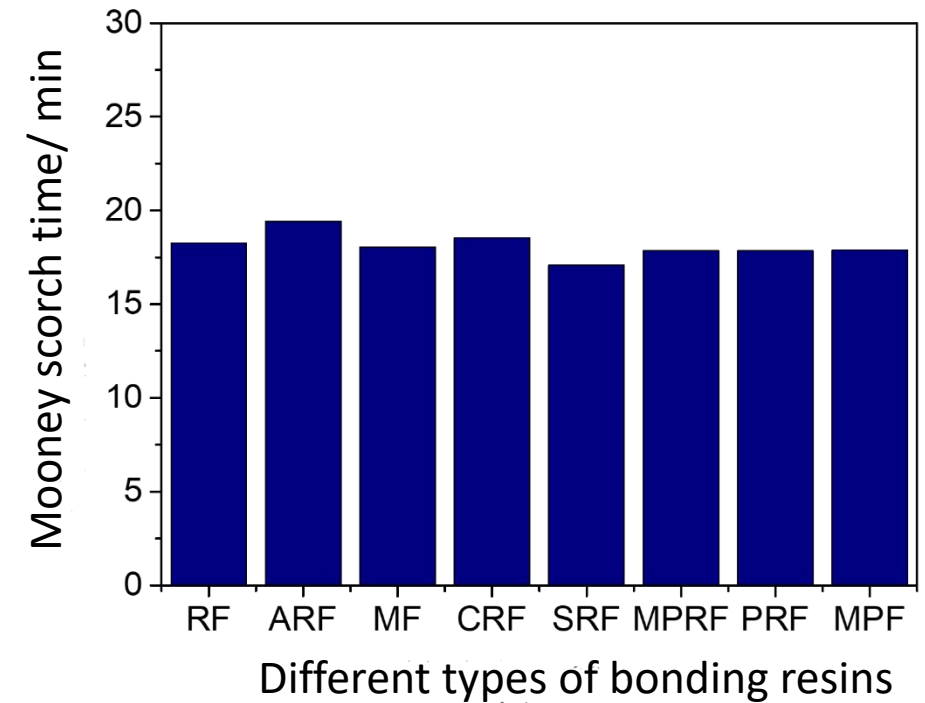
Test formula (belt layer)

Materials	phr
Natural rubber	100
N375	44
White carbon black	10
Anti-aging agent 4020 (Rheinland)	3.5
ZnO(indirect method, 99.7%)	8
Cobalt Decanoate	1.2
Peptizer AP	0.2
Bonding resin	1.5
Insoluble sulfur (HD OT 20)	5
AcceleratorNS	1
Anti-scorch agentCTP	0.23
Adhesive RA-65	5
Total	179.63

Compound processing property

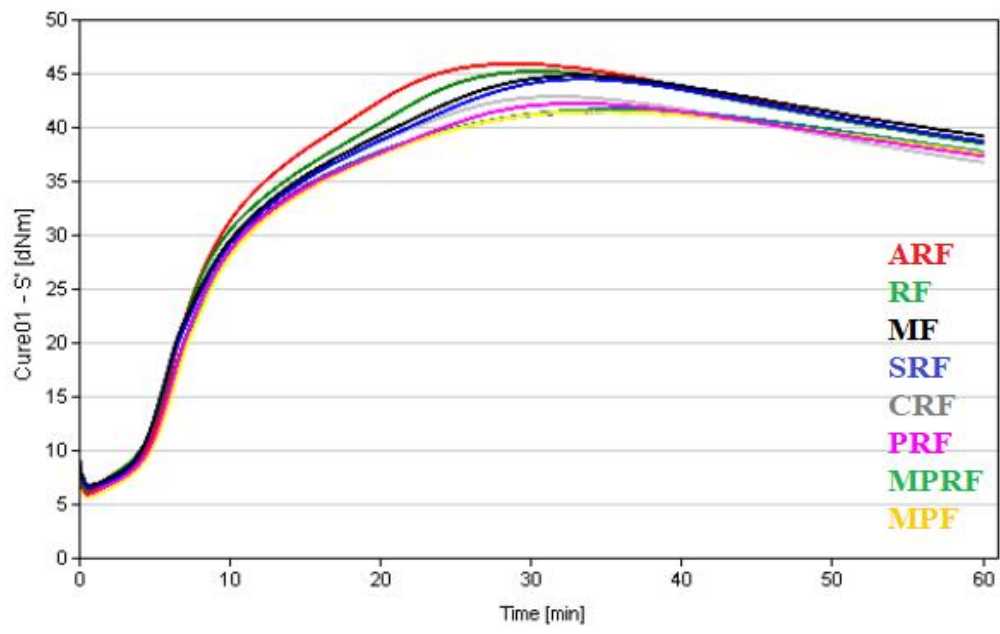


Mooney viscosity



Mooney scorch (127°C)

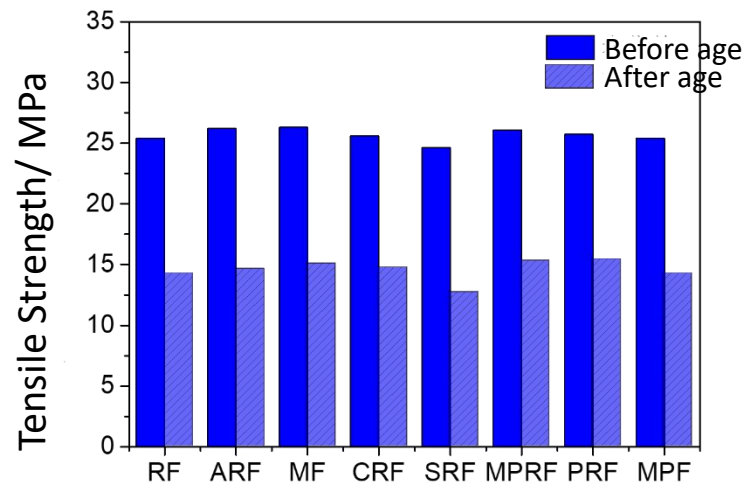
Vulcanization characteristics



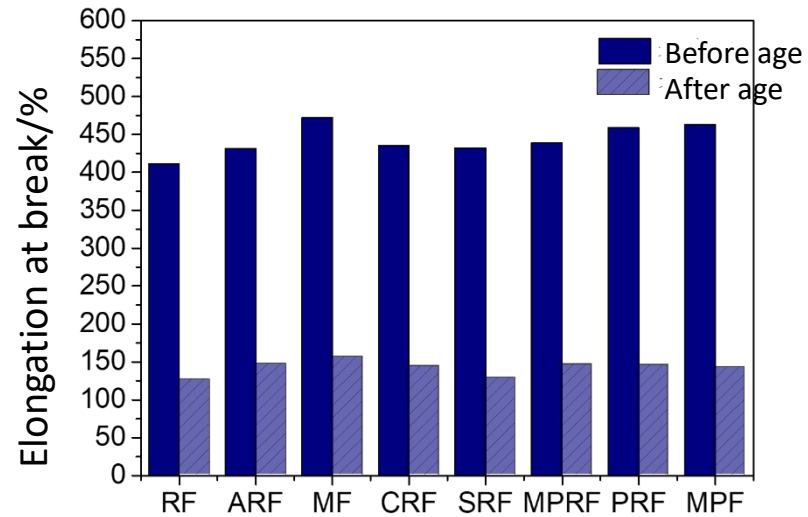
151°C*60min

Code	RF	ARF	MF	CRF	SRF	MPRF	PRF	MPF
ML/dNm	6.39	6.07	6.62	5.93	5.92	5.69	5.89	5.92
MH/dNm	45.24	45.95	44.53	43.27	42.91	41.53	41.73	41.52
TS1/min	1.77	1.8	2.55	2.07	1.99	2.22	2.23	2.23
TS2/min	2.86	3.06	3.47	3.31	3.13	3.38	3.3	3.29
t10/min	4.13	4.36	4.3	4.37	4.1	4.42	4.26	4.23
t30/min	6.09	6.18	6.03	6.25	5.9	6.37	6.2	6.12
t60/min	9.54	9.37	10.08	9.53	9.28	9.56	9.44	9.27
t90/min	21.05	19.38	22.95	21.67	20.8	20.75	20.6	20.26
(t90-t10) /min	16.92	15.02	18.65	17.3	16.7	16.33	16.34	16.03
RVE97/min	37.84	36.61	40.71	41.71	39.6	45.15	45.72	45.14

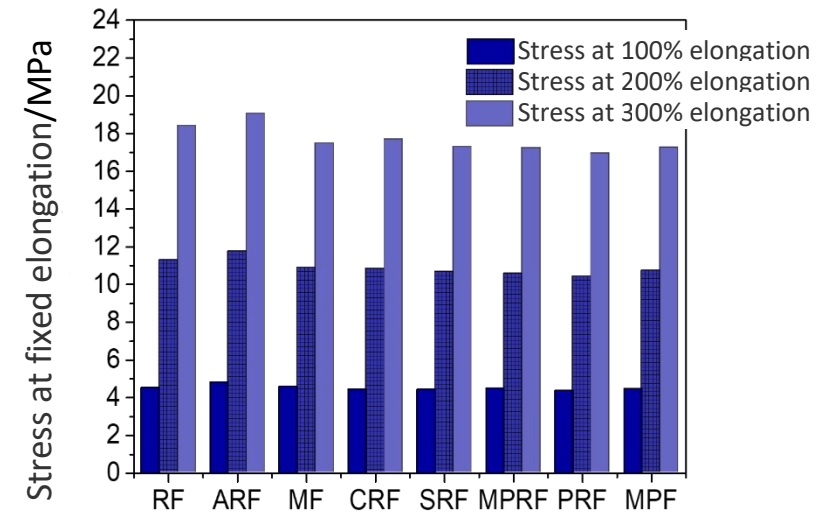
Physical property of vulcanized rubber



Different types of bonding resins

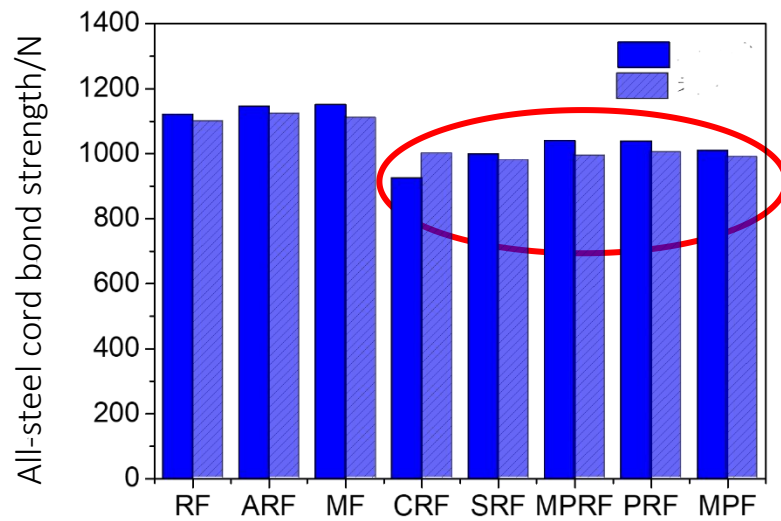


Different types of bonding resins

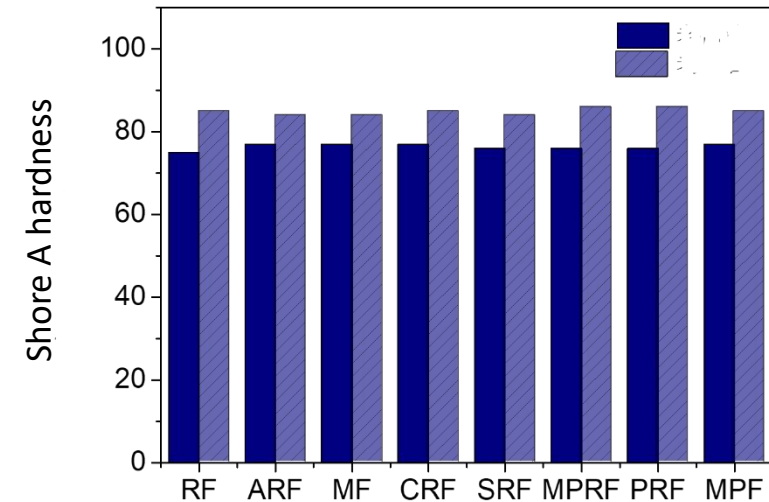


Different types of bonding resins

Physical property of vulcanized rubber



Different types of bonding resins



Different types of bonding resins

RT4 series

Curing Resins

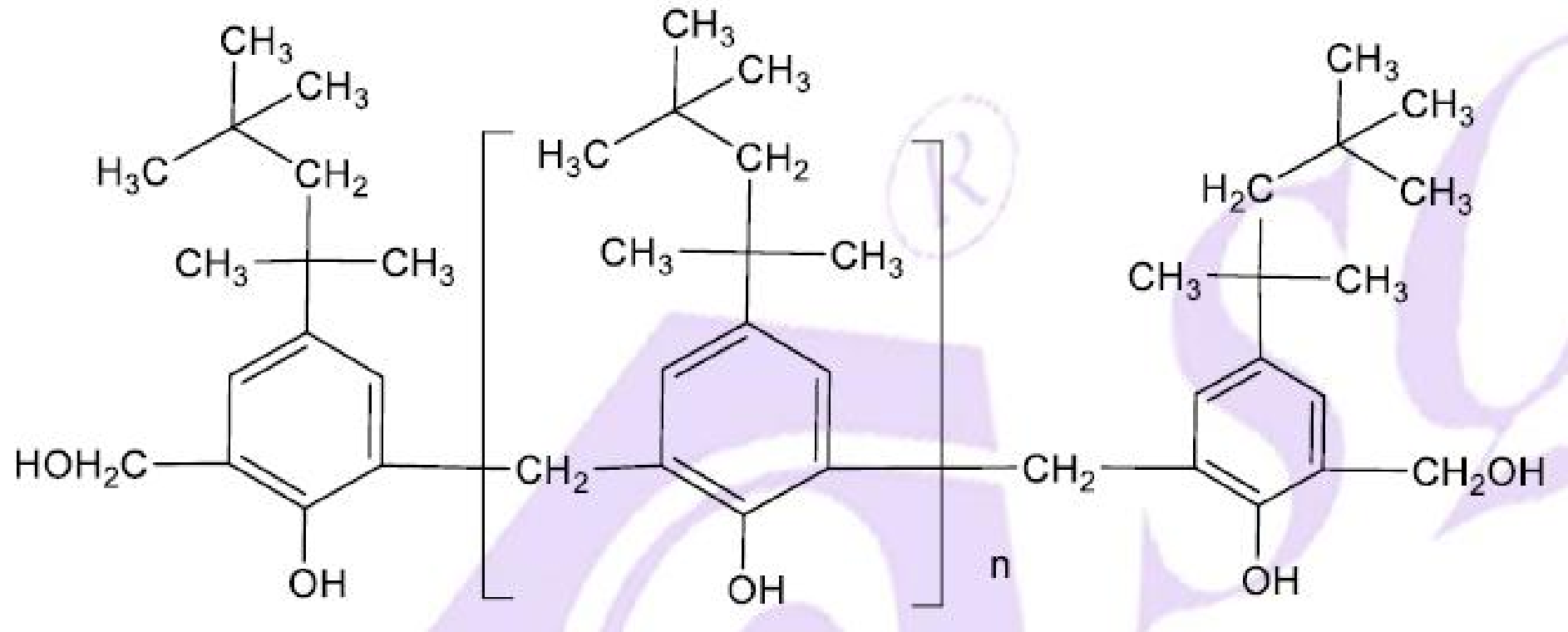


Features:

Curing resins produced by SQ are thermal reactive alkyl phenolic resins, with typical 8-16% hydroxymethyl active groups. They can bring outstanding heat and steam resistance performances to rubber products.



Grade	Note	Applications
RT4101	Butyl phenol-formaldehyde curing resin	Neoprene adhesive, medical adhesive plug, vulcanized capsule, TPV and other rubber products
RT4201, RT4202, RT4201H	Octylphenol-formaldehyde curing resin	
RT4203, RT4204	Octylphenol bromide curing resin	



RT5 series

Functional Resins





■ 抗湿滑树脂 ■ 抗撕裂树脂

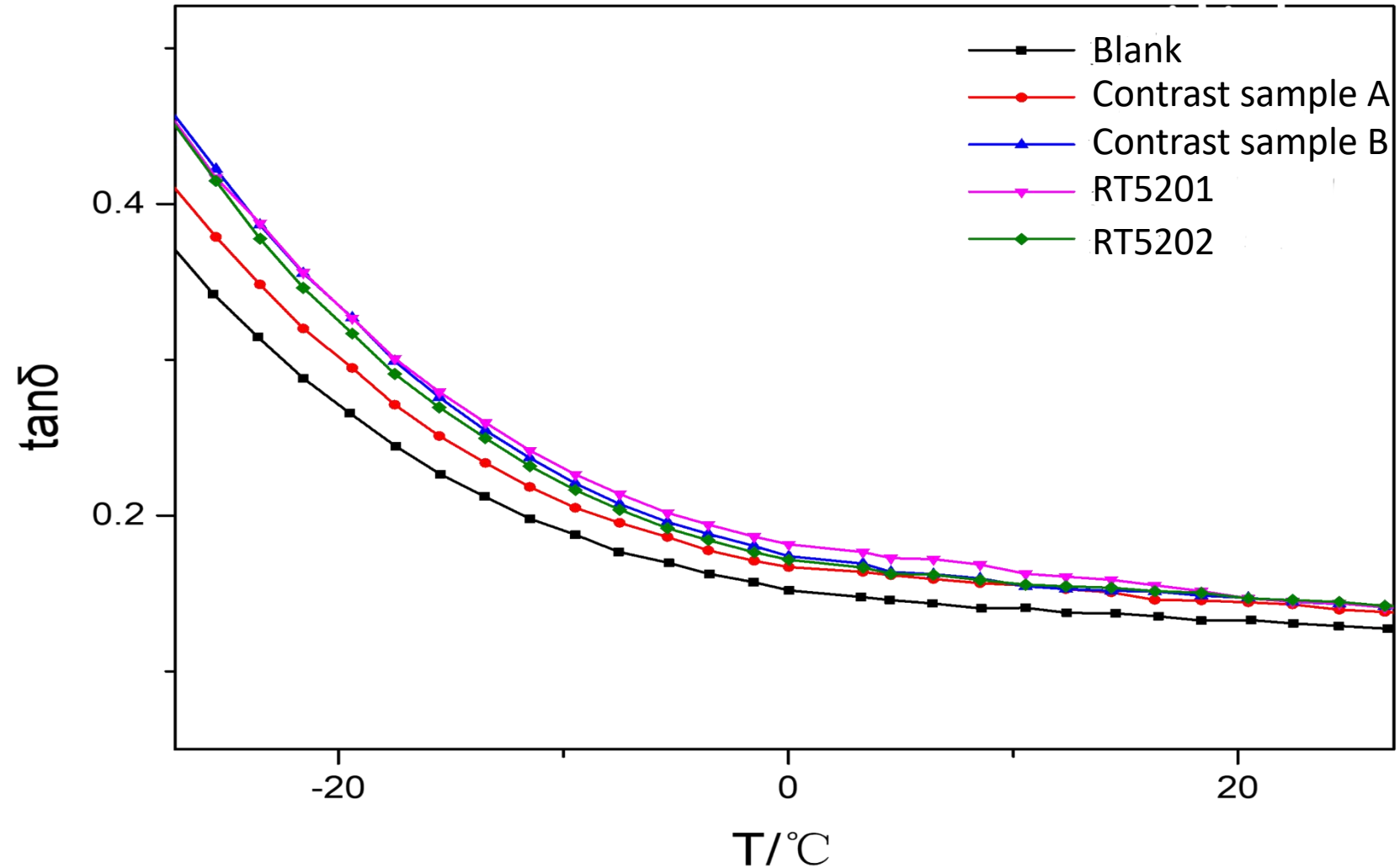
Tear resistance resin



- Hydrogenated aromatic modified hydrocarbon resin
- Effectively improve the slip resistance performance of tyre, while rolling resistance is not affected.
- Good compatibility with the natural rubber and styrene butadiene etc. Limited adverse effect on rubber compound performance.
- Effectively improve viscosity and processing performance of rubber compound.
- Light color and lower odor, high temperature resistance performance and good color stability.

Dynamic mechanical properties of vulcanized rubber

Item		Contrast sample A	Contrast sample B	RT5201	RT5202
T _g /°C	-46.07	-44.10	-41.95	-43.11	-43.21
tanδ(0°C)	0.152	0.167	0.174	0.182	0.172
0°Ctanδ change	0	9.84	14.48	19.50	12.92
tanδ(60°C)	0.109	0.118	0.122	0.107	0.108
60°Ctanδ change	0.00	7.76	11.35	-1.77	-0.85



- Effectively improve tyre performances on anti-tear, anti-cutting and anti-chipping
- Effectively enhance viscosity of rubber compound, and improve its processing performance, widely used in polar and non-polar rubber including natural rubber, styrene butadiene rubber, butadiene rubber, EPDM rubber and so on.
- Good compatibility with rubber compound. 3-20% resin addition can bring rubber compound good dynamic properties.

RT7 series

Impregnation Resins



Code	RT7500	RT7550A	RT7550	RT7540	RT7520
Appearance	Red liquid	Red liquid	Red liquid	Dark red liquid	Dark red liquid
Application and feature	Impregnation resin for high-end cord cloth with features of long shelf life, high viscosity, high effective composition and strong adhesive strength.	Environment friendly impregnation resin for curtain cloth. No need to add formaldehyde in the formula. Odorless, low viscosity, easy to operate, Strong adhesive strength.	Impregnation resin for canvas and thread. Good water solubility. Odorless; Mainly used in activated polyester filament	Impregnation resin for low end cord fabric, canvas and cord. Good water solubility. High activity,	Impregnation resin for canvas and thread. Good water solubility. High activity; Low salt content

Something New





RT6001 is a reinforcing agent with biomass modification which is a downstream product of lignosulfonate produced by SQ Group.

Features of lignin from SQ Group:

1. Improvement of SQ industrial chain
2. Compared with the lignin produced by paper plants, environmentally friendly lignin produced by SQ has advantages of consistent quality and stable output.
3. It can replace parts of petrochemical materials such as phenol to produce lignin modified reinforcement resin.
4. It can also be used as water reducing agent, carbon black binder, dispersant and asphalt emulsifier.



- **Specification:**

Item	Specification	Test Method
Appearance	Light yellow or white powder	By see
D90,μm	≤25	GB/T 19077-2016
Volatiles, %	≤5	GB/T 11409-2008

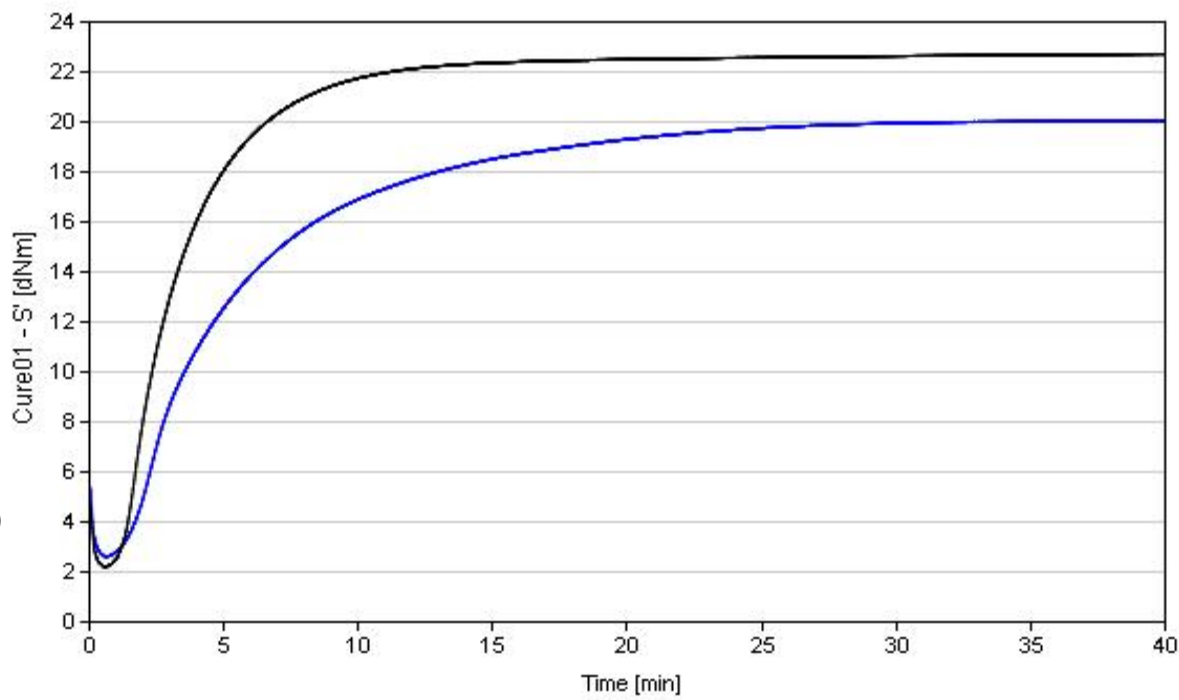
- **Feature:**

- RT6001 is mainly used as a reinforcing agent for natural rubber and various synthetic rubbers, such as tires, shoes, window seals, hose, floor covering rubber material and other fields.
- RT6001 has features of high surface activity and good compatibility with rubber compound. It can effectively reduce the heat generated by compression of the compound. Enhance aging resistance performance and enlong service life of the compound
- Due to excellent reinforcing property, RT6001 can replace 10%-40% of carbon black addition. It significantly improves the strength and elongation of the compound, while the hardness the compound won't be affected.
- Possessed with efficient vulcanization performance, RT6001 is compatible with most vulcanization systems in the market with good cost advantage.
- RT6001 It can effectively reduce the Mooney viscosity of the compound, improve the plasticity of the compound and reduce the difficulty of mixing.
- RT6001 can bring benefits including: reducing Mooney viscosity, improving plasticity, and reducing mixing difficulty of the compound.

	Blank	PF6001
Item	Parts By Weight	Parts By Weight
NR	100	100
N330	50	40
RT6001	0	10
Zine oxide	5	5
stearic acid	3	3
Oil-S	2.5	2.5
DM	0.6	0.6

Mooney viscosity (100°C) and mooney scorch (125°C)

Vulcanization performance (150°C*40min)



Item	ML (1+4)	t5/min	t35/min
BLANK	34.11	11.03	13.80
RT6001	30.71	9.27	11.40

Item	ML /dNm	MH /dNm	ts1 /min	t10 /min	tc90 /min
BLANK	2. 62	20. 04	2. 72	5. 36	14. 03
RT6001	2. 21	22. 72	2. 04	3. 44	7. 48

Comparison of mechanical properties of vulcanized rubber(150°C*25min; 100°C*48h aging test)

Item	T.S MPa	Elong %	100% Mod MPa	200% Mod MPa	300% Mod MPa	Tear MPa	Shore A	Change rate of T.S after aging%
BLANK	24.45	465.57	2.15	6.99	13.60	88.07	61.00	-55.66
RT6001	27.25	534.74	2.25	6.12	11.92	82.45	62.00	-38.24

After 20% carbon black N330 replaced by RT6001, tensile strength and elongation at break of the rubber compound are increased by over 10%. Anti-aging performance of the compound is improved with less tensile strength dropping after aging.



Item		T1	T2	Rate
		BLANK	RT6001-1	
Heat generation by compression	Temperature rises at the bottom of samples/°C	28	19	32%
ViscoelasticityDMA	Tg (°C)	-44.8	-42.5	5%
	tanδ (0°C)	0.2006	0.1671	17%
	tanδ (60°C)	0.1282	0.0901	30%
RPA2000	tanδ (2.109%)	0.136	0.096	29%
	tanδ (4.149%)	0.139	0.104	25%
	tanδ (6.188%)	0.139	0.107	23%

With 20% carbon black N330 replaced by RT6001-1, heat generation of the rubber compound is significantly reduced.

The low roll resistance of the compound is improved.

100%
Biomass
reinforcing
agent



	RT62**
Appearance	Brown liquid
Viscosity mpa.s	2000-3000
Free phenol, %	0
Free aldehyde, %	0

Item	T5/min	T35/min
BLANK	29.75	32.82
RT2201	17.83	22.93
RT6201	23.47	25.47

- Vulcanization characters
(160°C*30min)

Item	ML/dNm	MH/dNm	T30/min	T60/min	T90/min
BLANK	1.84	19.97	5.22	5.99	9.20
RT2201	1.89	30.16	4.20	6.05	12.59
RT6201	1.86	20.66	4.33	5.21	9.26

Vulcanization characters
(195°C*50min)

Item	ML/dNm	MH/dNm	T30/min	T60/min	T90/min
RT2201	2.69	29.86	0.47	0.56	0.79
RT6201	2.53	27.08	0.53	0.61	0.80
BLANK	2.52	27.55	0.56	0.65	0.81

Mechanical properties of vulcanized rubber(150°C*30min; 100°C*24h aging test)

Item	Tensile strength/MPa	Elongation at break/%	100%stress at definite elongation/MPa	200%stress at definite elongation/MPa	SHORE A Hardness	tear strength /MPa	Aging tensile strength/MP a rate of changing%
BLANK	20.57	320.74	4.61	12.61	73	44.85	-18.38
RT2201	15.13	325.1	5.25	9.86	90	53.46	-4.76
RT6201	17.37	397.69	4.27	8.85	81	82.71	-6.56

Lignin modified phenolic resin



	RT63**
Appearance	Brown solid
Biobased content, %	20-60
Free Phenol, %	<1%
Soft Point, °C	100-125

04

Customer value-added services





MIXER



MOONEY



tensile strength
tester



Aging Oven



Good Rich Flexometer



DMA



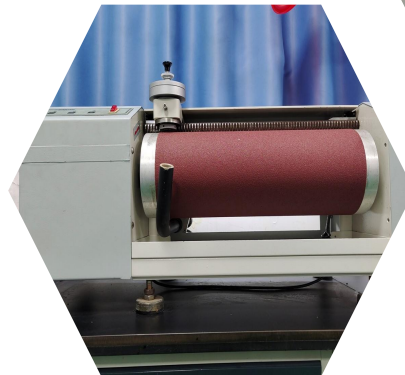
RPA



Autohension
tester



DIN abrasion



flexer



pretreatment equipment

- Microwave digestion instrument*3
- Ion sputter coater*2
- Double disk manual grinding and polishing machine
- Water bath thermostatic oscillator
- ultrapure water machine*2

Chromatography & Mass spectrometry

- GPC*8
- IC
- GC
- GC-MS*2
- HPLC
- UHPLC
- ICP-MS/MS

Thermal analysis

- TMA
- DSC*2
- TGA
- DSR
- DMA
- TGA-DSC
- TGA-IR



Surface interface & Morphology

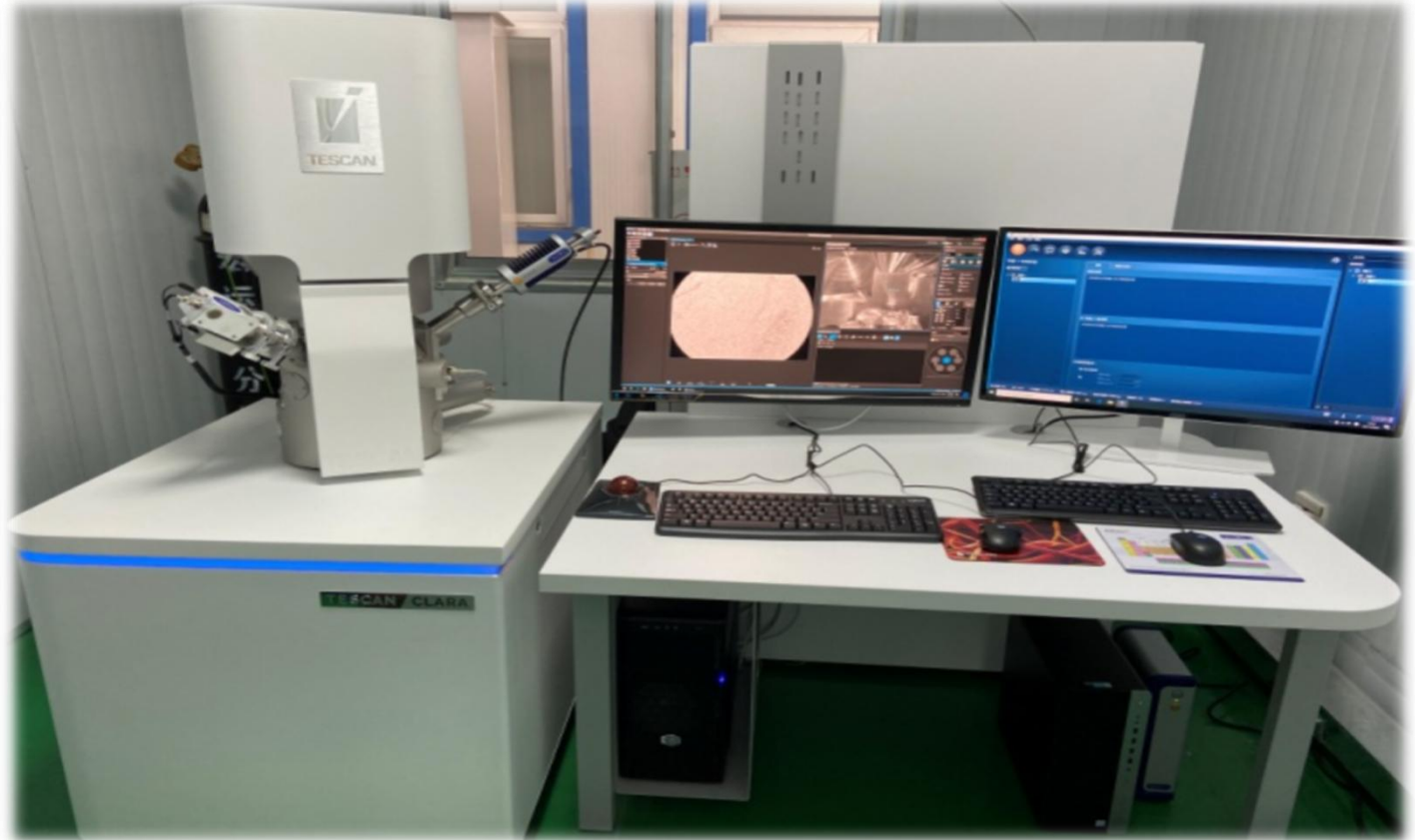
- Laser particle size Analyzer (dry, wet)
- Specific surface area and aperture analyzer (B.E.T)
- Zeta potentiometric analyzer
- Tungsten filament scanning electron microscopy - X-ray energy spectrometer (SEM+EDS)
- field emission scanning electron microscope
- Fiber mass analyzer
- polarizing microscope
- Contact Angle tester

Spectrum & Othes

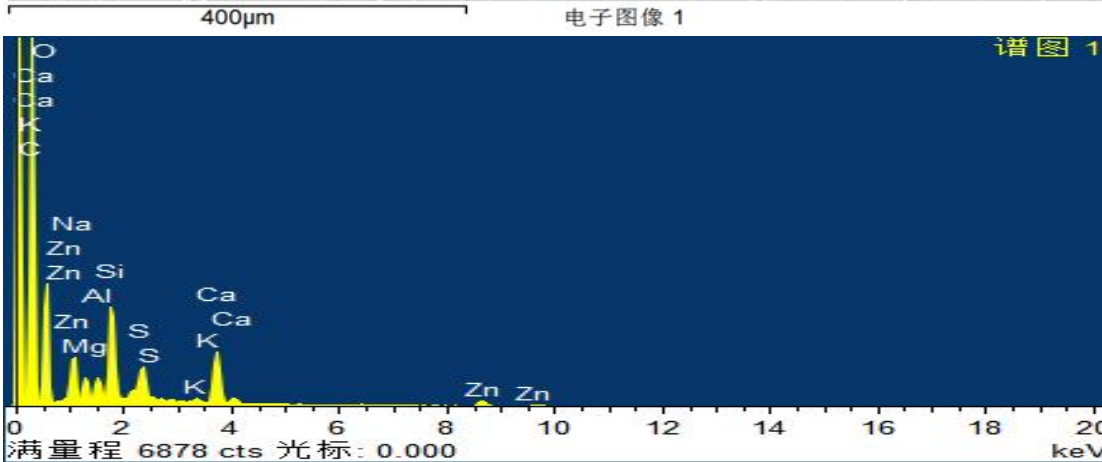
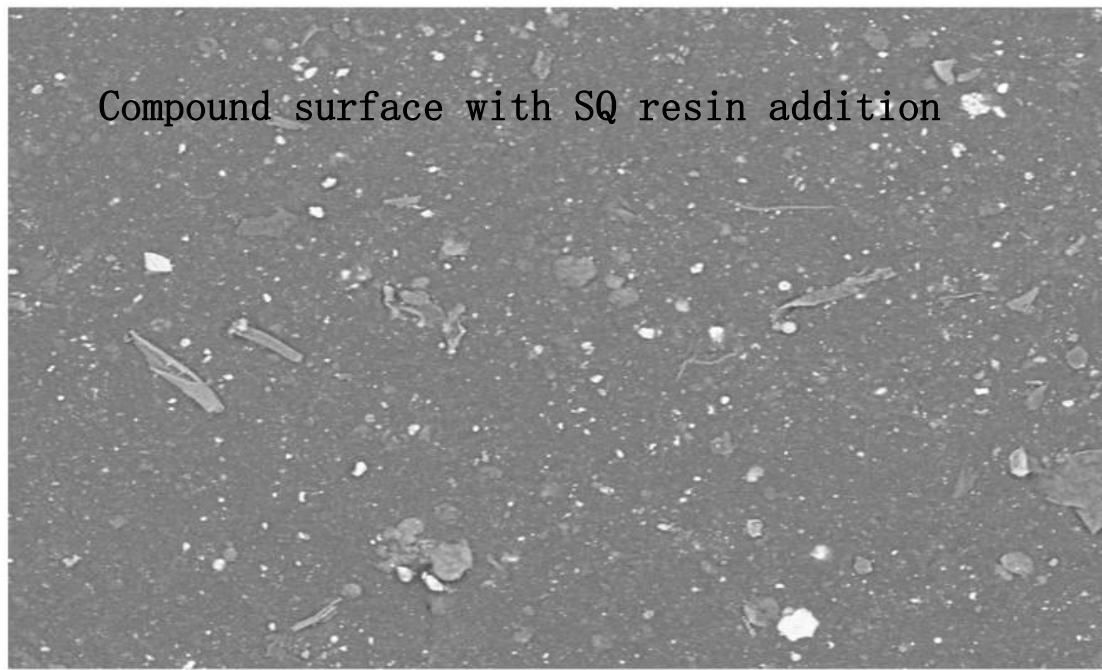
- ICP
- Micro-Raman Spectroscopy System
- infrared spectroscopy
- Microinfrared spectroscopy
- XRF
- NMR)
- Solid density meter
- Automatic moisture meter
- Laser Doppler Flowmeter
- Microcirculation observer
- XRD



Instrument brand: Zeiss Tungsten filament
scanning electron microscope
Instrument model: EVO-18



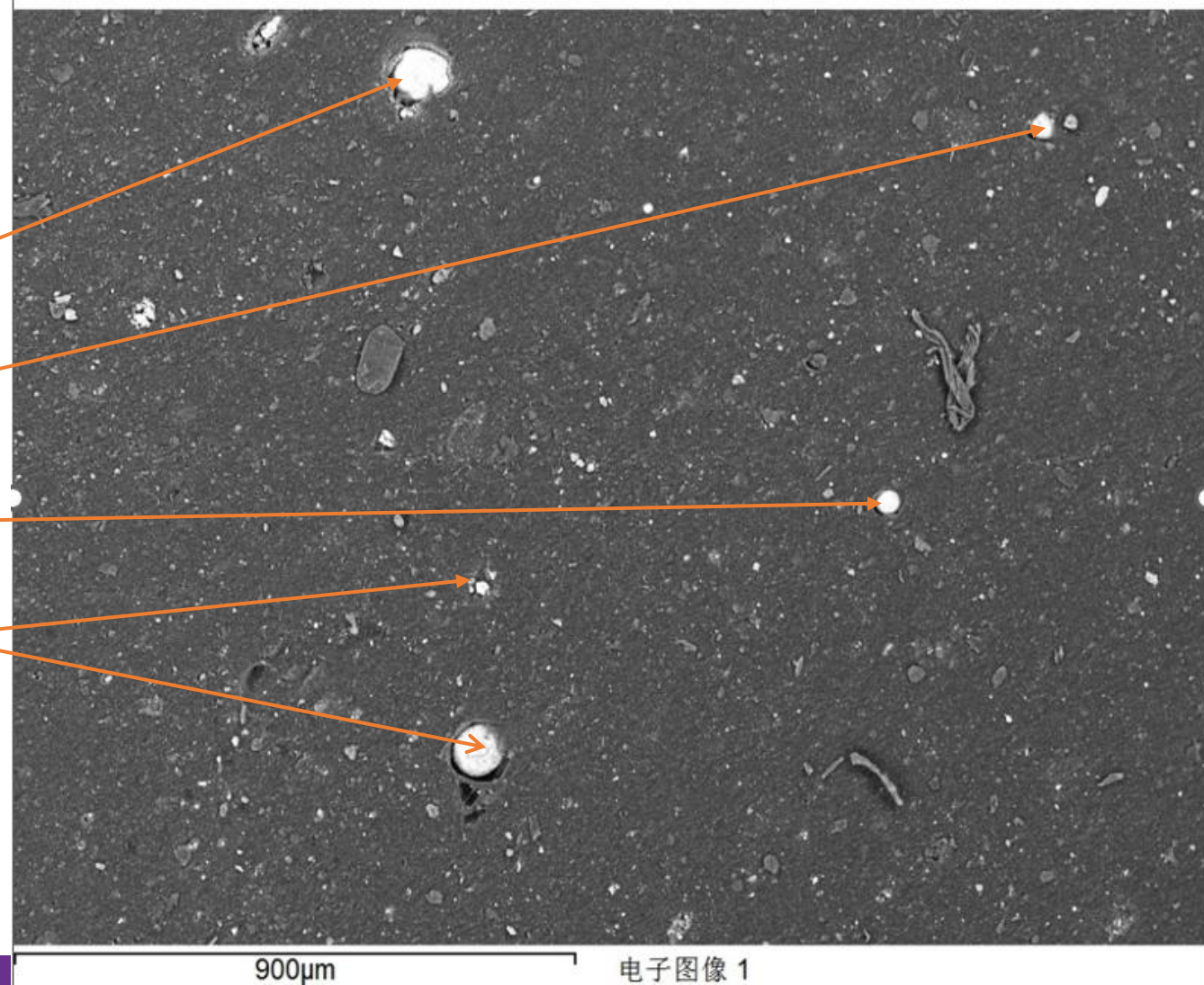
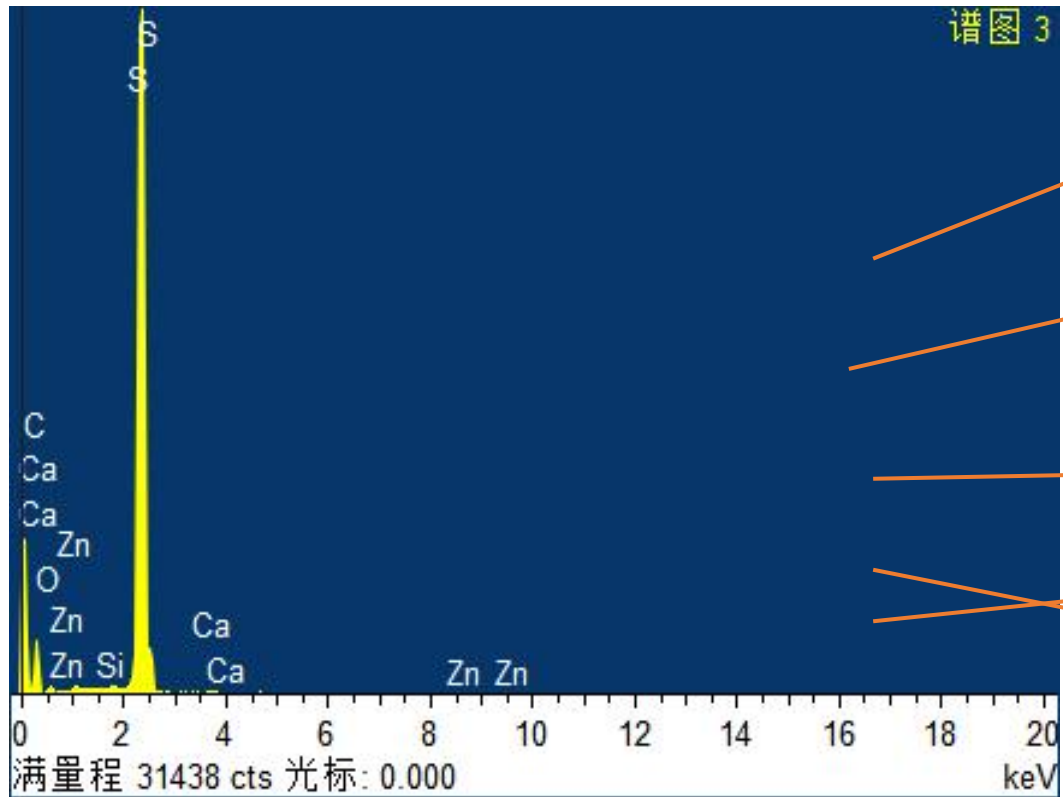
Instrument brand: Tesken Field Emission Scanning electron Microscope
Instrument model: TESCOAN CLARA

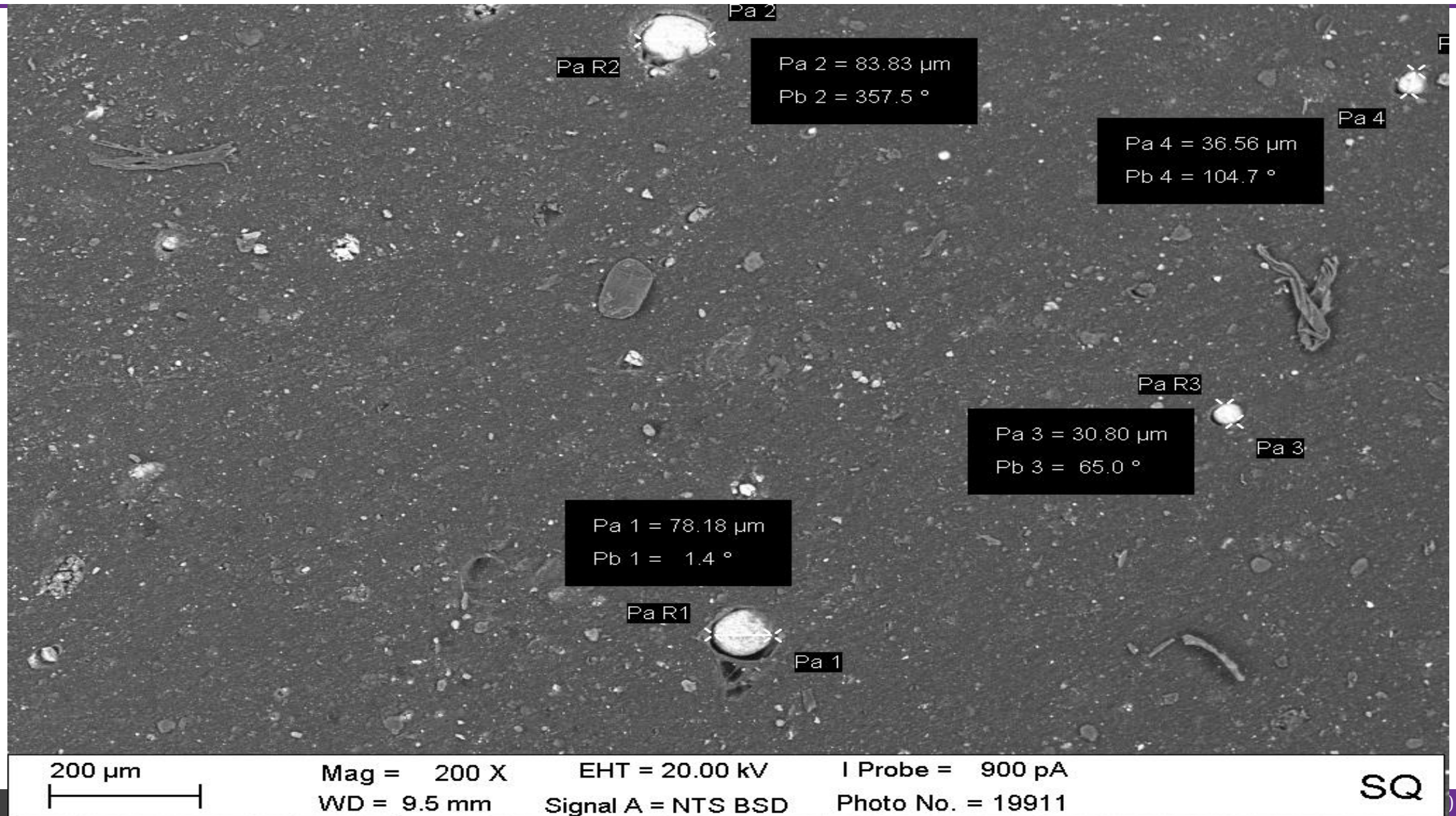


Master batch rubber weight	840
OT20	9.18
NS	3.43
S%	0.86%

元素	重量	原子	
	百分比	百分比	
C K	87.49	91.66	
O K	9.65	7.59	
S K	0.75	0.30	
Ca K	0.35	0.11	
Zn K	1.76	0.34	
总量	100.00		

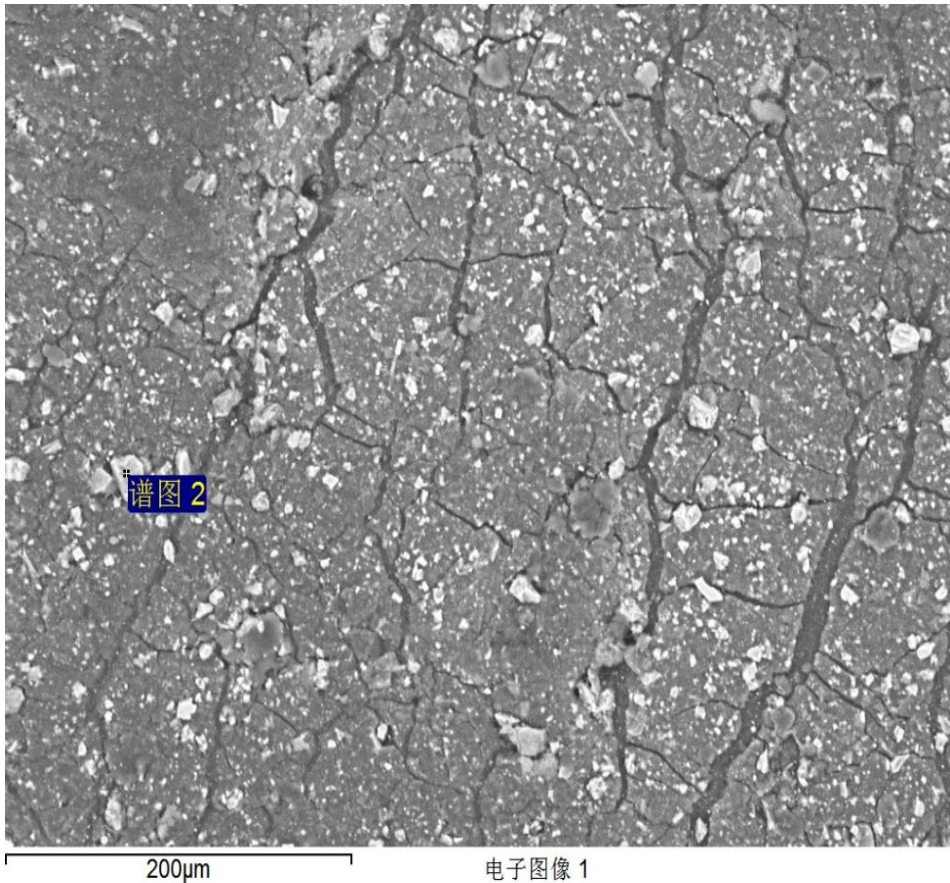
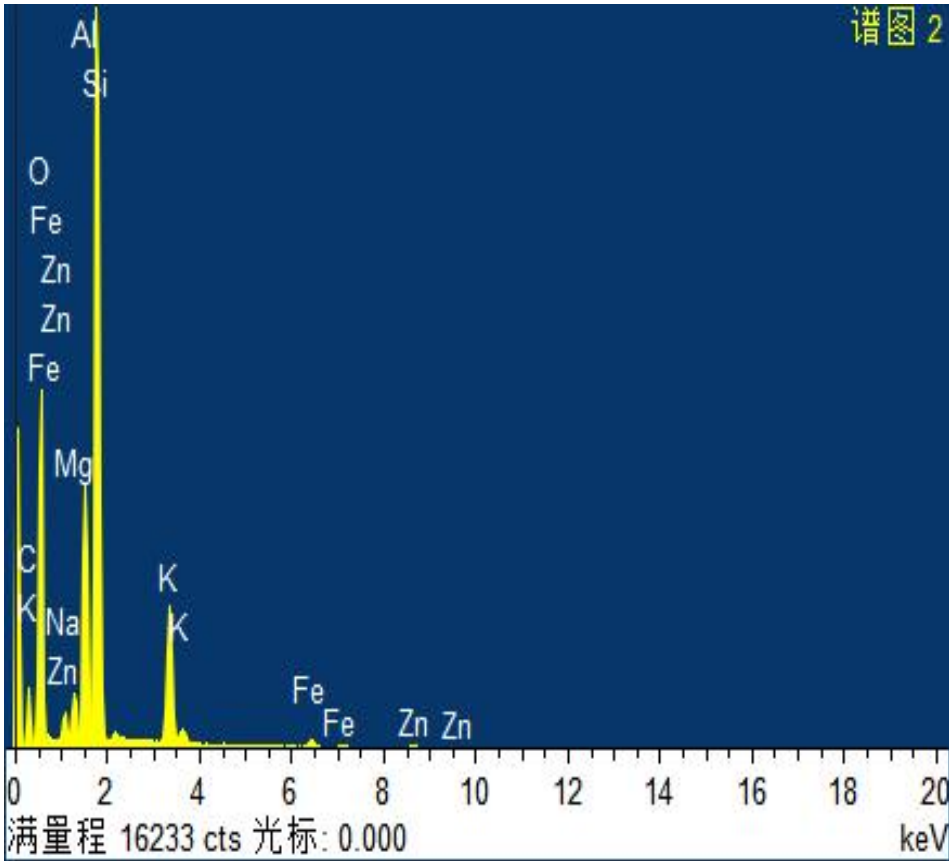
Abnormal film





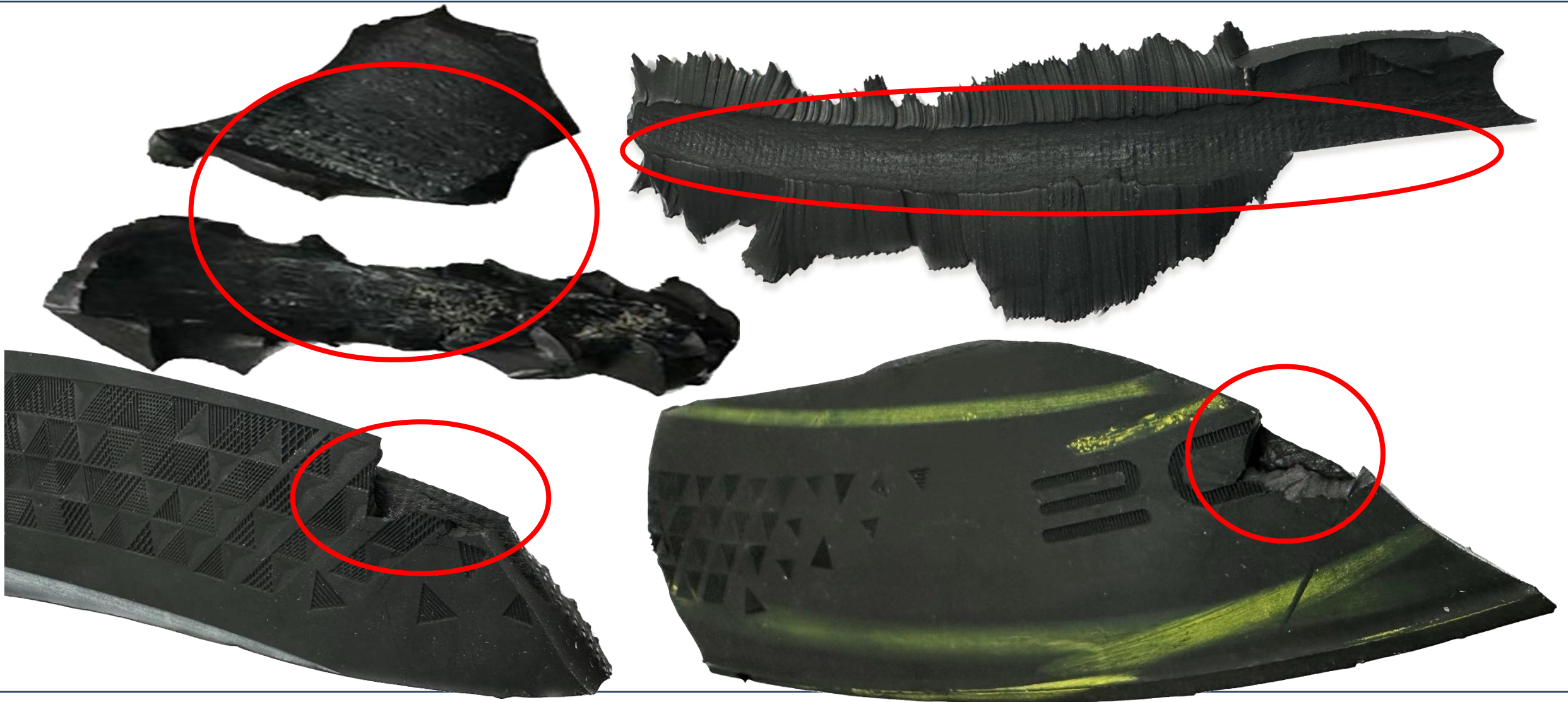
Abnormal film: Surface

元素	重量	原子
	百分比	百分比
C K	17.08	25.62
O K	46.09	51.89
Na K	1.07	0.84
Mg K	1.28	0.95
Al K	6.51	4.35
Si K	20.58	13.19
K K	5.89	2.71
Fe K	0.84	0.27
Zn K	0.66	0.18
总量	100.00	



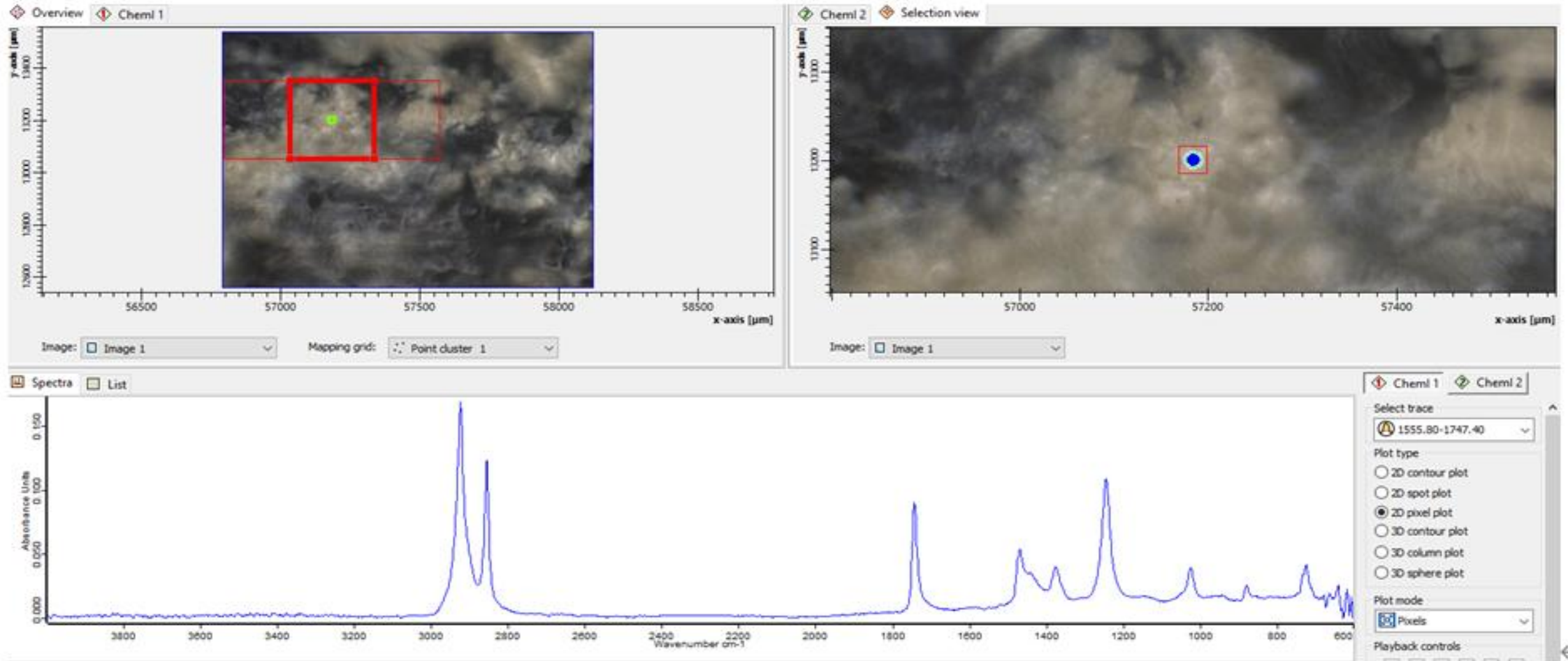


Test item	C%	H%	O%	N%	S%
Film - anomaly	81.56	7.403	2.819	0.888	2.301
Film - normal	81.27	7.083	2.818	0.938	2.187



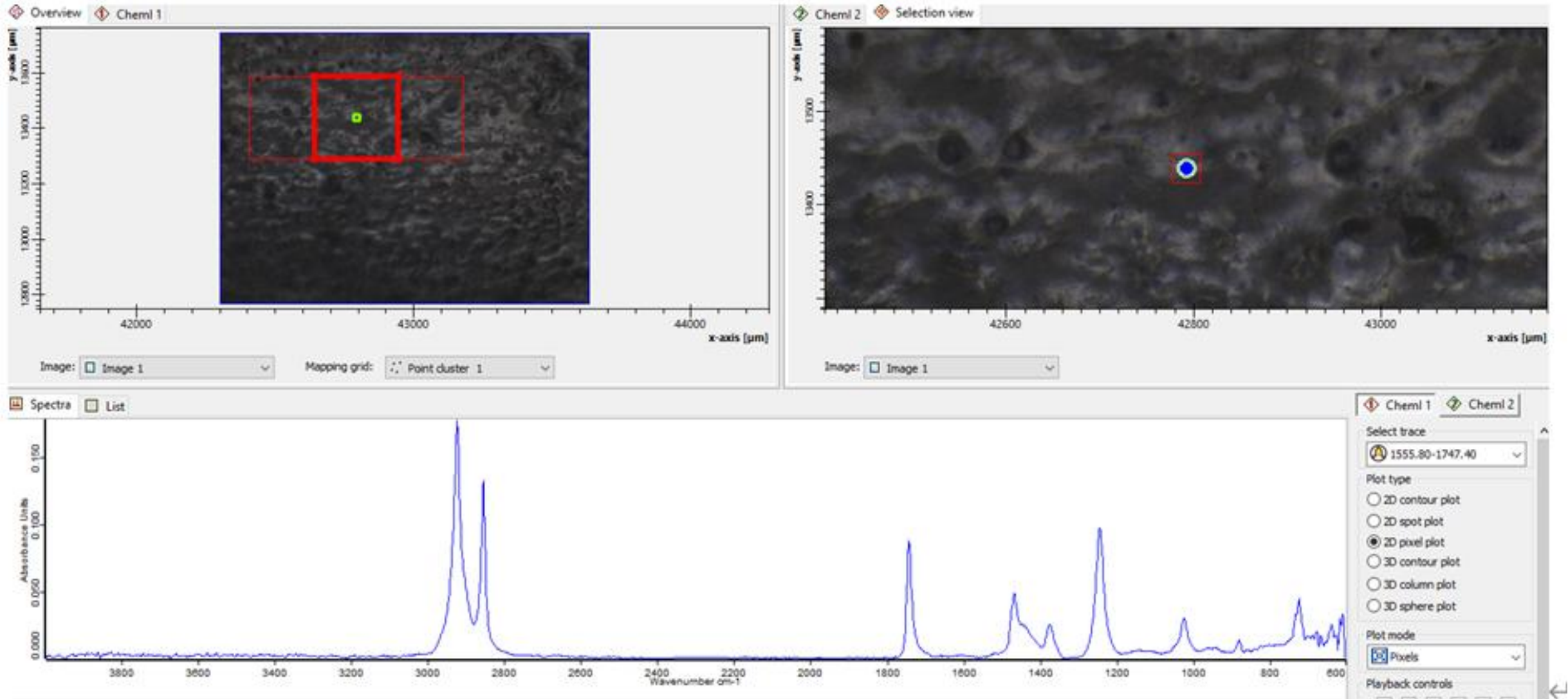


Test on obvious impurities on the rubber surface





Detect the not obvious impurities on the rubber surface





谢谢参与
THANK YOU !
日照光合 生生不息

济南圣泉集团股份有限公司