

2019

TSR 20 TRADING MANUAL



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Comparison between Natural Rubber and TSR 20 Futures Contracts:

Product	Natural Rubber	TSR 20
Contract Size	10 tons per lot	
Price Quotation	RMB per ton	RMB per ton (tax excluded)
Minimum Tick Size	5 RMB per ton	
Daily Price Limits	±5% of last settlement price	
Listed Contracts	Jan, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov,	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
Trading Hours	9:00~11:30 a.m. 1:30~3:00 p.m. 21:00-23:00	9:00~11:30 a.m. 1:30~3:00 p.m. and other trading hours announced by INE
Last Trading Day	The 15 th trading day of the contract month (it is subject to adjustment in accordance with the national holidays).	
Delivery Period	Five consecutive trading days after the last trading day (subject to adjustment in accordance with the national holidays)	
Deliverable Grades	SCR WF Delivery Quality Standard of SHFE (GB/T 8081-2018); RSS 3 Delivery Quality Standard of International Standard of Quality and Package of Natural Rubber Registration (Green Paper).	TSR 20 Delivery Quality Standard of INE.
Delivery Venues	The delivery warehouses designated by SHFE.	The delivery warehouses designated by INE.
Delivery Form	Physical delivery	

Ticker Symbol	RU	NR
Listed Exchange	SHFE	INE

I. TSR 20 Futures Contract of the Shanghai International Energy Exchange

(i.) Delivery Unit

The delivery unit of TSR 20 futures contract is 10 metric tons. The delivery quantity shall be integral multiple(s) of the delivery unit.

(ii.) Quality Standard

1. The quality of physically delivered TSR 20 shall meet the standards set out by the Exchange.

INE TSR 20 Quality Standard

Item	Limit	Inspection method
Dirt Retained on the 45 μ m sieve maximum%, (mass fraction)	0.16	GB/T 8086
Ash maximum% (mass fraction)	1.0	GB/T 4498.1
Nitrogen content maximum% (mass fraction)	0.6	GB/T 8088
Volatile-matter content maximum %, (mass fraction)	0.8	GB/T 24131.1
Initial plasticity (Po) minimum	30	GB/T 3510
Plasticity retention index (PRI) minimum	40	GB/T 3517

2. TSR 20 underlying each standard warrant shall be registered with the Exchange, accompanied by the corresponding certificate of quality.

3. TSR 20 underlying each standard warrant shall comprise rubber of the same brand, manufacturer (factory), and packaging specification. .

(iii.) Registered Commodity

Registered commodity and their manufacturers (factories), and the rate of premium and discount thereof for various brands will be separately announced by the Exchange.

(iv.) Designated Delivery Storage Facilities

Designated delivery storage facilities and the rate of premium and discount thereof will be separately announced by the Exchange.

II. Rules and Regulations of TSR 20**(i.) Trading Rules****Chapter 8 Hedging and Arbitrage of TSR 20 Futures Contract**

Article 71 The regular months regarding the hedging and arbitrage trading positions of a TSR 20 futures contract shall be the period from the listing day of the contract to the last trading day in the second month prior to the delivery month, while the nearby delivery months are the first month prior to the delivery month and delivery month.

Article 72 The application for hedging quota and arbitrage quota for regular delivery months of a TSR 20 futures contract shall be submitted during the period from the listing day of the contract to the last trading day of the second month prior to the delivery month of the contract. INE does not accept any applications beyond such period.

The application for hedging quota for nearby delivery months of a TSR 20 futures contract shall be submitted during the period from the first trading day of the third month prior to the delivery month to the last trading day of the month prior to the delivery month. The application for arbitrage quota for nearby delivery months of a TSR 20 futures contract shall be submitted during the period from the first trading day of the second month prior to the delivery month to the last trading day of the month prior to the delivery month. INE does not accept any applications beyond such period.

Article 73 The hedging quota for nearby delivery months may be repeatedly used in the first month prior to the delivery month, but cannot be repeatedly used from the first trading day of the delivery month.

(ii.) Delivery Rules**Chapter 11 Delivery of TSR 20 Futures Contract**

Article 160 The TSR 20 futures contract adopts physical delivery, bonded delivery and warehouse delivery.

Article 161 The delivery unit of a TSR 20 futures contract is 10 tons. The actual delivery amount shall be the integral multiples of the delivery unit.

Article 162 Deliverable grades for TSR 20 shall not be produced through pre-breaker and are specified in the *Standard TSR 20 Futures Contract of the Shanghai International Energy Exchange*.

Article 163 The TSR 20 for delivery is subject to commodity registration.

Article 164 An application for the registration of TSR 20 for delivery shall meet the following requirements:

1. The applicant shall be a TSR 20 manufacturer meeting the following criteria:

(1) it has an annual TSR 20 production capacity of fifty thousand (50,000) metric tons, and a TSR 20 output of no less than thirty thousand (30,000) metric tons over the most recent two (2) years; any of its processing factories has a sizable market; and it has had continuous and stable output for no less than two (2) years;

(2) it has fairly good recognition and reputation;

(3) for quality management: it has passed the ISO 9001 certification for quality management system;

(4) for environment and safety management: it has passed the ISO 14001 certification for environmental management system or is otherwise compliant with the local requirements regarding environmental and safety management; and

(5) its manufacturing process complies with the industry polices of the jurisdiction where it operates.

The Exchange may adjust the annual production output and other metrics for the commodity concerned in view of market conditions.

2. The commodity under application shall meet the following criteria: (1) its quality standard complies with the specifications of the Exchange; and (2) it has a considerable market share in the physical market and a sound degree of recognition in the industry. 3. The commodity is recommended by one (1) or more Members or OSPs of the Exchange. 4. The application meets the other requirements prescribed by the Exchange.

Article 165 In addition to the materials specified in Article 133 of these Delivery Rules, the following materials shall be provided for the registration of TSR 20 for delivery:

1. the latest quality test report issued by an authoritative quality inspection institution;

2. the internal quality analysis reports of the applicant over the most recent three (3) months;
3. the manufacturing process flow chart (if two or more processes are adopted, flow chart shall be provided for each);
4. several color photographs showing the appearance, identifiers, and packaging of the commodity, together with an indication of the shape, dimension, and weight of each bale; the packaging method; packaging materials and their specifications; and the location of trademarks or identifiers;
5. several color photographs showing the main production equipment, facilities, and plants (if there are two or more production sites, pictures shall be provided for each);
6. the certificate of incorporation, shareholders-related documents, and business operations overview and reports of its subordinate processing factory; and
7. recent usage report for the commodity from two (2) or more domestic or foreign enterprises.

Article 166 Designated Delivery Storage Facilities for TSR 20 shall be managed in accordance with Chapter 7 of these Delivery Rules excluding the provisions of Articles 68.7, 69.2, 69.4, 79.8, 87, and 91 thereunder regarding such matters as terminal facilities, ports, pipelines, measuring instruments, qualification requirements of metrology personnel, and transport losses. The provisions on load-out under Article 85 of these Delivery Rules are not applicable to the Designated Delivery Storage Facilities for TSR 20 Delivery Rules.

Article 167 At the time of load-in and creation of standard warrant for TSR 20, the owner shall submit the inspection report issued by the relevant Designated Inspection Agency, bill of lading, certificate of origin, approval of load-in issued by the customs, and other relevant documents to the Exchange for verification. At the time of load-in and creation of standard warrant for TSR 20, the owner shall additionally deliver the phytosanitary certificate, the certificate of accreditation of the testing laboratory as well as their Chinese translations and the quality inspection report to the Designated Delivery Storage Facility for safekeeping. The Designated Delivery Storage Facility shall keep such documents secure and provide them to the owner during import customs clearance; the owner shall return such documents to the Designated Delivery Storage Facility following the completion of import customs clearance and, if it is the last shipment, submit them to the customs as required.

Article 168 Each standard warrant for TSR 20 shall represent ten (10) metric tons in name, and shall be in the same registered brand, manufacturer (factory), and packaging specification.

Article 169 Each TSR 20 bale shall have a net weight of 35 kg and be wrapped in a 30-65 µm-thick

polyethylene film with a vicat softening temperature of less than 95 °C. One pallet of TSR 20 shall comprise thirty-six (36) bales and be packaged according to relevant pallet wrapping standards. The pallet shall be readily loaded onto or unloaded from racks and stacked. Each pallet shall indicate the grade number, net weight, manufacturer name or code, and manufacturing date of the rubber it holds and other pertinent information. Any loaded-in TSR 20 shall be dry and clean. A Designated Delivery Storage Facility shall not issue standard warrant for any TSR 20 that is found at time of acceptance to have serious packaging damage or a performance defect such as surface aging or cracking, exposure to rain or moisture, mold, undercooked or serious contamination.

Article 170 The range of manufacturing dates of TSR 20 underlying each standard warrant shall not exceed thirty (30) days; the earliest of them shall be taken as the manufacturing date for the standard warrant.

A standard warrant for TSR 20 is valid for twelve (12) months from the manufacturing date.

Any TSR 20 for physical delivery shall be loaded in within ninety (90) days of the date of manufacturing, after which no standard warrant shall be issued for such TSR 20.

An inspection report for TSR 20 already loaded in is valid for ninety (90) days following issuance, after which the covered commodity shall be re-inspected and delivered only after passing the new inspection. The holder of the standard warrant shall be solely liable for the quality of the underlying TSR 20 if it fails the new inspection, unless the Designated Delivery Storage Facility is liable.

Article 171 The load-in inspection of TSR 20 shall be conducted in accordance with the TSR 20 (Futures) Inspection Rules. Designated Delivery Storage Facilities shall cooperate with Designated Inspection Agencies in their inspections and shall verify the quantity and quantity of TSR 20 for load-in and out. The quality inspection report issued by the relevant Designated Inspection Agency shall be conclusive as to the result of a quality inspection. Standard warrant may be created only if the findings of the quality inspection report conform to the quality standards of the Exchange for the delivery commodity. The relevant provisions of Article 38, paragraphs 2 and 3 of Article 39, Article 40.1 (“The Load-In Quality Inspection”), and paragraph 3 of Article 44 of these Delivery Rules are not applicable to TSR 20.

Article 172 An owner shall ship its commodities to the approved Designated Delivery Storage Facility within thirty (30) days of the approval of its load-in application by the Exchange.

Article 173 Any buyer who questions the quality or quantity of the delivered commodities following completion of physical delivery (the delivered TSR 20 under dispute shall be currently stored in the Designated Delivery Storage Facility) shall submit a written application to the Exchange no later than the

fifteenth (15th) day (or the following trading day if it falls on a legal holiday or weekend in China) of the month following the month of physical delivery, accompanied by the quality inspection conclusion issued by the Designated Inspection Agency. If such application is not submitted before the date specified above, the buyer will be deemed to have accepted the delivered commodities and the Exchange will no longer accept any challenges with respect thereto.

Article 174 The final settlement price of TSR 20 futures shall serve as the benchmark price for the delivery settlement of TSR 20 futures, and is calculated as the volume-weighted average of the executed prices of that contract during the last five (5) trading days that the contract has been traded. At delivery settlement, the buyer and the seller shall settle based on such final settlement price as adjusted by the premiums or discounts of the delivery. 1. The bonded final settlement price shall be the basis for calculating and assessing the dutiable value of TSR 20 at customs declaration by the holder of a TSR 20 bonded standard warrant. The formula for the bonded final settlement price of an expired contract is: Bonded Final Settlement Price = Final Settlement Price. 2. When a bonded standard warrant is used in an EFP, the formula for the EFP bonded final settlement price is: EFP Bonded Final Settlement Price = Settlement price of the first nearby delivery month contract on the trading day immediately before the EFP application day. 3. When non-standard warrants are used in an EFP, the final settlement price shall be as negotiated by the trading parties.

Article 175 The formula for the delivery payment for a TSR 20 bonded standard warrant is: Delivery Payment for Expired Contract = (Bonded Final Settlement Price + Premiums and Discounts of the Delivery) × Delivery Quantity; EFP Delivery Payment = (EFP Bonded Final Settlement Price + Premiums and Discounts of the Delivery) × Delivery Quantity. For the purpose of calculating the delivery quantity, each standard warrant shall represent ten point zero eight (10.08) metric tons of the delivery commodity. The requirements and management of the tax invoices for TSR 20 futures contract shall be separately announced by the Exchange. Such tax invoices shall be circulated by the procedures under Chapter 2 of these Delivery Rules.

Article 176 The buyer and the seller in a physical delivery shall each pay a delivery fee of 4 RMB per ton to the Exchange.

Article 177 The delivery venues shall be the Designated Delivery Storage Facilities separately announced by the Exchange.

(iii.) Risk Management Rules

Chapter 9 Risk Control Parameters for TSR 20 Futures Contract

Article 64 The minimum trading margin for TSR 20 futures contract is 7% of the notional contract value.

Article 65 Trading margins for TSR 20 futures contract at different periods of trading from its listing to its last trading day are as follows:

Period	Minimum trading margins of TSR 20
As of listing	7%
As of the first trading day of the first month prior to the delivery month	10%
As of the first trading day of delivery month	15%
As of the second trading day prior to the last trading day	20%

Article 66 Proportions and sizes of position limit for a TSR 20 futures contract at different periods of trading are as follows:

	From the Day of Listing to the Delivery Month		From the Day of Listing to the Last Trading Day of the Second Month prior to the Delivery Month		First month prior to delivery month		Contract month	
	Open interest (Lot)	Position limit (%)	Position limit (Lot)		Position limit (Lot)		Position limit (Lot)	
			FF, OSBP, OI	Non-FF Member, OSNBP	Client	Non-FF Member, OSNBP	Client	Non-FF Member, OSNBP
TSR 20	≥50,000	25	2000	2000	600	600	200	200

Note: The total open interest and position limit are all on a net basis.

Article 67 When the price variation reached 9% for 3 consecutive trading days, 12% for 4 consecutive trading days or 13.5% for 5 consecutive trading days, INE may, in its sole discretion, exercise one or more

measures from Article 9 and inform the CSRC prior to the implementation.

Article 68 After closing of market of the 8th trading day prior to last trading day of TSR 20 contract, individual client who couldn't deliver or receive invoice issued by INE shall adjust its open interest to 0. INE applies forced position liquidation to individual's position starting from the 7th trading day prior to last trading day.

After closing of market for the 3rd trading day prior to last trading day of TSR 20 contract, the short positions of client, non-FF member, OSNBP shall not exceed the number of standard warrants they have. INE applies forced position liquidation to excess positions of client, non-FF member, OSNBP starting from the 2nd trading day prior to last trading day.

Overview of Natural Rubber

I. Natural Properties

The natural rubber as talked usually refers to natural rubber latex collected from *Hevea brasiliensis* which will turn into elastic solid shape through solidifying, drying and other procedures. The principal component of natural rubber are polyisoprene (over 90 percent) of the general formula $(C_5H_8)_n$, and other components including protein, fatty acid, carbohydrate, ash content, etc.

Physical property

Natural rubber features good elasticity, minor plasticity and super good mechanical strength at room temperature. It generates less heat during deformation which leads to its capacity for considerable reversible deformation. Moreover, it features electrical insulation due to its non-polarity.

Chemical property

With its unsaturated double bonds, it is reactive chemical and has low resistance to light, heat, ozone, exposure, bend deformation as well as metals like copper, manganese., which constitutes to its fatal weakness. However, natural rubber with rubber antioxidant is of excellent ageing resistance and is free from ageing by sunlight exposure for up to two months and is fully functioning with three year's storage in warehouse.

Property of resistance

Natural rubber is alkali-resistant but is vulnerable to concentrated and strong acid. Due to its non-polarity, it is resistant only to a few polar solvents and could be swelling with non-polar solvent.

Therefore, it is vulnerable to oil and solvent. Natural rubber can be dissolved in hydrocarbon, halogenated hydrocarbon, carbon disulfide, ether, alkane with high carbons and high fatty acid. The solubility, however, is dependent on to what extent it is plasticized. Natural rubber is not soluble to alkane with low carbons, ester with low carbons and alcohols.

II. Classification and Quality Standard

Natural rubber is classified into two categories based on its forms: solid natural rubber (rubber sheet and granulated gelatin), which accounts for the larger part in daily life, and concentrated latex.

Based on different manufacturing method and shapes, rubber sheet can be classified as RSS, air-dried rubber sheet, crepe rubber, brown crepe sheet, etc. RSS is the most widely used natural rubber and it can be divided into RSS1, RSS 2, RSS3, RSS4, and RSS5.

Following international standard, granulated gelatin (i.e. standard rubber) is divided by physical and chemical indicators, including dirt, initial plasticity, plastic retention index, nitrogen content, volatile-matter content, and color index. It can be divided into 5L, 5, 10, 20 and 50 by dirt content.

Delivery items of natural rubber futures contract from SHFE are SCR WF and RSS3. SCR WF is also called No. 5 standard rubber and follows GB/T8081~2008 standard issued by State Bureau of Technical Supervision. RSS3 follows Delivery Quality Standard of International Standard of Quality and Package of Natural Rubber Registration (Green Paper 1979)

INE TSR 20 Quality Standard

Item	Limit	Inspection method
Dirt Retained on the 45 μ m sieve maximum%, (mass fraction)	0.16	GB/T 8086
Ash maximum% (mass fraction)	1.0	GB/T 4498.1
Nitrogen content maximum% (mass fraction)	0.6	GB/T 8088
Volatile-matter content maximum %, (mass fraction)	0.8	GB/T 24131.1
Initial plasticity (Po) minimum	30	GB/T 3510
Plasticity retention index (PRI) minimum	40	GB/T 3517

TSR 20 natural rubber is labeled according to the origins:

STR 20 refers to TSR 20 made in Thailand.

SMR 20 refers to TSR 20 made in Malaysia.

SIR 20 refers to TSR 20 made in Indonesia.

The number “20” refers to less than 0.2% of dirt content.

III. Applications

Natural rubber performs excellently in terms of rebound resilience, insulation, water repellence, plasticity etc. After proper treatment, it can also be proof against oil, acid, alkali, heat, cold, pressure and wear. For example, rain shoes, hot water bottle, elastic cord in daily life; surgical and medical examination gloves, blood transfusion tube, condom in medical and health care; conveyor, acid-proof gloves, alkali-proof gloves in industry; irrigation hose, ammonia bag in agriculture, weather balloon in meteorology; sealed and shockproof equipment in scientific experiment; airplane, tank, artillery, gas mask in national defense and even cutting-edge scientific products such as rocket, satellite and spaceship, etc.. Over 70,000 product items are partially or 100% made of natural rubber in the world.

Supply & Demand, Circulation and Influential Factors on Price

I. Supply and Demand

(i.) Global Market

Supply

Natural rubber plantation mainly distributes within 15 degrees at the equator, and the world's 90% plantations are in Southeast Asia, including Thailand, Indonesia, Malaysia, China, India, Vietnam, Myanmar, Sri Lanka, etc. The first three countries account for over 60% of world total natural rubber's plantation with most production for export. Over 90% of total output in Thailand and Indonesia are exported. Generally, the rubber plants from Thailand, Indonesia and Malaysia can be tapped from April to next February.

Demand

East Asia, America and west Europe are major consumptions of natural rubber, among which East Asia ranks the top in total consumption, with China accounting for over one third since 2010.

Major Producer's Natural Rubber: Production/ Net Export (unit: 10,000 tons)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Thailand	325/	382/	309/	417/	432/	447/	418/	443/	488/
	287	284	268	366	377	375	381	382	411
Indonesia	274/	320/	301/	324/	315/	315/	316/	363/	363/
	237	254	253	280	269	267	260	328	195
Malaysia	102/	100/	102/	83/	67/	72/	67/	73/	60.4/
	89	--	91.6	--	--	--	64	62	--

Source: Wind

Around 11 million tons of natural rubber is produced recent years across the world, with TSR20 being 7.7 million tons, accounting for about 70% total output.

TSR 20 is mainly produced overseas, with Indonesia and Thailand produced 3.03 and 2.62 million tons separately, accounting for 39.1% and 33.8% of world total TSR 20 output. In addition, Malaysia produced 540,000 tons, accounting for 7% of the world's total.

(ii.) Domestic Market

In China, natural rubber is produced in Hainan, Yunnan, Guangdong, Guangxi and Fujian provinces. As two major producers, Hainan collects rubber from March 25 to December 25, and Yunnan from April to November 25 annually. China produces around 800,000 tons of dry glue over the past years, ranking top five among the world. In 2012, the planted area of natural rubber exceeds 1.11 million hectares, and 795,000 tons of natural rubber is produced in 2012. China consumes 5.67 million tons of natural rubber in 2018, ranking the first around the world and its self-sufficiency ratio has been declining from 20% to less than 15%.

China produces about 120,000 tons of TSR 20 every year, mostly by private enterprises. Hainan cultivates 30,000 tons whereas Yunnan barely plants or cultivate TSR 20. Private rubber plants in Yunnan

produces about 40,000 to 60,000 tons of rubber and Sinochem International produces 30,000 tons of rubber. Other manufacturers basically produce about 10,000 to 20,000 tons of rubber.

There are two types of domestic produced tire-grade rubber, namely TSR 20 exclusively for tire and 9710. The latter is basically the same as TSR 20 whereas the first can be regarded as TSR 20 mixed rubber. Therefore, the latter is better than the first one in terms of quality and both are mainly used to produce radial tire.

Output, Import and Consumption of Natural Rubber in China

Unit: 10,000 tons

Year	2014	2015	2016	2017	2018
Consumption	480	468	489.6	495	567
Output	84	79.4	77.4	79.8	83.7
Export	409.7	410.2	430.2	534.3	539.3
Import	1.8	4.3	3.5	3.8	3.1

Source: Wind

II. Trade Flow

(i.) Global Market

Since most natural rubber is produced near equator and most consumers do not involve in production, the spot trade mainly flows from equator to other parts of the world, especially North America, East Asia and West Europe.

(ii.) Domestic Market

In China, domestic natural rubber flows from south to north, distributed from Shanghai, Qingdao and Tianjin to other cities, and central and northeast are also large consumers. Xiamen, Shanghai, Qingdao and Tianjin are China's main ports for natural rubber import, which then flows into other consumer cities from

east to west.

RSS and granulated gelatin are the main natural rubber circulating in China. RSS is imported and granulated gelatin (standard rubber) is both produced and imported. With radial tires' market share stepping up annually, granulated gelatin import share gradually grows along the years. It is quite usual to switch different types of rubber, as it is recognized in everyday applications that domestic produced No.5 standard rubber and imported No.3 RSS could substitute for each other.

TSR 20 is widely used in tire manufacturing, conveyer belt and pipe. However, China produces less than 200,000 tons of TSR, far less than demand. Therefore, about 1.7 million tons of TSR 20 is imported every year. China is highly dependent on importing TSR 20. With the rapid development of China's tire industry, China witnesses a rapid growth of TSR 20 import volume, with a high of 1.98 million tons in 2015. However, with over supply of tire and rising mixed rubber, the import volume of TSR 20 in 2016 and 2017 plummeted. Yet, China still imports 1.68 million tons of TSR 20, accounting for 29.67% of total import volume and 25.92% of China's apparent consumption for natural rubber.

Previously, there's import quota on natural rubber where State Development Planning Commission set the quota and get the license from Ministry of Foreign Trade and Economic Cooperation, and tracked by customs in order to meet the demand from manufacturers first and uphold the interest of domestic natural rubber farmers. According to WTO protocols, China cancels the quota management in 2004 and implements registration of imported natural rubber and imported natural rubber becomes more market-driven thereafter.

III. Influential Factors on Price

(i.) Global Supply and Demand

Supply and demand are the roots affecting natural rubber's price. Thailand, Indonesia, Malaysia, China, Vietnam and India are major natural rubber producers. China and India consume large amount of natural rubber and so does Vietnam over these years. Therefore, Thailand, Indonesia, Malaysia and Vietnam are large natural rubber exporters, while America, China, Western Europe and Japan are among the largest consumers. China's domestic natural rubber only accounts for one sixth of total consumption. America, Western Europe and Japan solely depend on import. Apparently, the four major exporters and three importers are playing the fundamental and significant roles in balancing the price.

(ii.) Domestic Supply, Demand and Tariff Policy

China's natural rubber has always been in tight supply. After China's entry into WTO and several policy adjustments, China imposes alternative duty starting from 2007, which means ad valorem duties of 20% or specific duties of 2,600 RMB/ton (choose the lower one). In 2010, RSS was taxed 20% or 1,600 RMB/ton, technical class rubber was taxed 20% or 2,000 RMB/ton (choose the lower one). Natural rubber was taxed 20% or 1,500 RMB/ton in 2015 (choose the lower one).

Cost of import = (Import quotation + sea freight and insurance) x exchange rate x (1+custom duty rate) x (1+VAT) + other fees (Both RSS3 and TSR 20 shall pay duties)

Sea freight and insurance fee: 40USD; custom duty rate: 20%; VAT: 13%; other fees: miscellaneous levies 200 RMB/ton + interest rate, warehouse fee and freight 150RMB/ton = 350 RMB

Note: import custom duty rate can be collected by 1,500 RMB/ton or 20% (choose the lower one)

We shouldn't neglect the smuggle issue. Vietnam has increased its import of natural rubber to China, however, the export volume data announced by Vietnam differs from import volume data announced by China's custom. This is caused by smuggling of partial natural rubber, which could somehow influence domestic market price of natural rubber.

(iii.) Global and Domestic Economy

As important industrial raw material, natural rubber price is highly related with economic environment in both China and beyond. In a booming economy, there'd be more demand for natural rubber, and price would increase. On the other hand, when economy is in slack, there would be less demand for natural rubber and price would decrease, as can be seen in the rubber price in 1997 Asia financial crisis. Therefore, economic environment would have impact on natural rubber price in the long run.

(iv.) Rubber-related Industry

Since automobile industry consumes the most amount of natural rubber (accounting for 65% of total natural rubber consumption), therefore, the development of tire manufacturing industry is related to automobile industry as sound development of automobile industry would require more tires. In Europe and Japan, demand for natural rubber gets stable when automobile industry develops into a stable stage. However, automobile industry in China is rapidly growing with great potential, therefore the natural rubber price will be

highly related with the development of automobile and tire industry.

(v.) Manufacture and Application of Synthetic Rubber

With continuous improvement of manufacturing engineering, many rubber products could be made up of synthetic rubber, instead of natural rubber. With the development of synthetic rubber industry, rubber products become more affordable. When there's tight supply of natural rubber, or the price of natural rubber surges, many manufacturers would choose synthetic rubber instead.

In the meantime, since synthetic rubber is petrochemical products, therefore, the price is influenced by petroleum price. Since petroleum price fluctuates, the price of synthetic rubber also fluctuates because of it.

(vi.) Natural Conditions

Certain geological conditions and weather conditions shall be met for rubber trees. Normally, it takes five to seven years before a rubber tree could be tapped. Therefore, we cannot change the available trees for rubber tapping within short period of time. Natural rubber output can be mainly influenced by 1. Seasonal factors. When it comes to tapping season, rubber price starts to go down. The price will go up when rubber trees are tapped. 2. Weather conditions. Cyclone, tropical storm, continuous rainy days, draught, frost can all lead to the decrease of rubber output and rising rubber price. 3. Pests and diseases. Powdery mildew, red root disease, anthracnose could severely curb the health growth of rubber trees and even result in death, which could also severely influence the rubber output and its price.

(vii.) Exchange Rate

Since exchange rate fluctuates due to uncertainties of global economy, import and export business of natural rubber is somehow influenced. Therefore, investors are strongly recommended to focus on the exchange rates of three major rubber producing countries and Japanese yen to US dollar when trade offshore natural rubber futures. Through correlation analysis, JPY to USD is, to some extent, correlated with natural rubber price. Therefore, the fluctuation of JPY to USD can influence the cost of imported natural rubber, and further influence domestic natural rubber price.

(viii.) Political Factors

Political factors involve not only governments' policies on natural rubber's import and export, but also, more importantly, emergencies across the world, including catastrophes or potential warfare issues. More often than not, these could lead to sharp fluctuations on natural rubber prices on a long term.

(ix.) Global Trading Market

Natural rubber is a futures product in global futures market. The trading volume accounts for certain market share in futures exchanges in many countries in Southeast Asia. Therefore, prices in futures exchanges from TOCOM and OME, SHFE, SICOM and SGX, KLCE, and AFET can somehow influence each other.

For investors of domestic natural rubber futures, when trading natural rubber futures from SHFE, it is suggested not only to focus on the trading status of both overseas futures exchanges but also keep an eye on the quotation on spot market in Hainan, Yunnan and Qingdao.



IV. Characteristics of Natural Rubber

(i.) Large Trading Volume

As a world bulk commodity with extensive use, there are a great number of buyers and sellers of natural rubber.

(ii.) Standardization

As a natural high molecular compound, it has stable quality and can be easily divided into different grades and easy to be standardized.

(iii.) Convenient Storage

Natural rubber is in solid particle or sheet, and is easy for storage and transportation and can meet the requirement for physical delivery for its futures contract.

(iv.) Sharp Price Fluctuations

Many factors could influence the price of natural rubber. As China's consumption of natural rubber grows every year, its output and import volume can be easily affected by many factors and demand outnumbers supply by a huge margin which result in sharp price fluctuations. Therefore, it is only natural for natural rubber producers, sellers and buyers to engage in futures market where they can hedge in order to mitigate their potential risk. Meanwhile, many investors would like to make profits from price fluctuations. Therefore, price discovery will be achieved through the trading by different types of investors on futures market.

V. Global Natural Rubber Futures

Natural rubber futures have been listed in global futures exchanges for many years. The major futures exchanges for trading natural rubber futures are TOCOM, SHFE and SGX, etc.

Exchange ↕	Listed Futures Products ↕
SHFE ↕	SCR WF, RSS3 (1993) ↕
INE ↕	TSR 20 (2019) ↕
TOCOM ↕	RSS3 (1952) ↕ TSR 20 (2018) ↕
SGX ↕	RSS1 FOB (1964) ↕ TSR 20 NAC (1988) ↕ RSS3 FOB, TSR 20 FOB (1990s) ↕

	SHFE & INE		TOCOM	SGX
	RU	TSR 20	TSR 20	TSR 20
Trading Unit	10 ton	10 ton	5 ton	5 ton
Minimum Tick Size	5 RMB per ton	5 RMB per ton	0.1 yen per kg	0.1 US cent per kg
Price Limit Range	±3% of last settlement price, currently the range is ±7% of last settlement price	±5% of last settlement price	Dynamic Circuit Breaker (DCB): 5 yen Surge Circuit Breaker (SCB): 20 yen	A cooling-off period of 15 minutes will be triggered if the price of any contract increases (decreases) by 10% of last settlement price. There is no price limit after cooling-off period.
Contract Months	January, March to November	January to December	January to December (six continuous months available)	12 months starting with current month, with next consecutive month added upon each month's expiry.
Trading Hours	09:00-10:15, 10:30-11:30, 13:30-15:00 from Monday to Friday; Continuous trading time: 21:00-23:00 from Monday to Friday; No trade during 21:00-23:00 the night before the holidays.		7:45-14:15 15:30-18:00 (Beijing Time)	Screen trade: 7:55-18:00 Block trade: 7:00-18:30
Last Trading Day	The 15 th trading day of the contract month (it is subject to adjustment in accordance with the national holidays).		Last day of trading of the month preceding the Delivery Month.	Last day of trading of the month preceding the Delivery Month.
Delivery Period	Five consecutive trading days after the last trading day.		Shipping date: nine trading days starting from any day from tenth trading day of contract month to fifteenth trading day of next month.	Generally at any time of the delivery month but not earlier than the fourteenth business day of the delivery month.
Delivery Unit	10 ton	10 ton (10.08 ton during delivery)	20.16 ton	20.16 ton
Deliverable Grades	SCR WF Delivery Quality Standard of SHFE (GB/T	TSR 20 Delivery Quality Standard of INE, Product	1. TSR 20 Quality Standard of Thailand, recognized by	20.16 metric tons of TSR20 manufactured from rubber produced

	8081-2018) (effective since November 1 st , 2019); RSS 3 Delivery Quality Standard of International Standard of Quality and Package of Natural Rubber Registration (Green Paper), Certificate of Origin (Thailand, Indonesia, Malaysia, Sri Lanka)	Registration.	TOCOM; 2. Products shall be delivered no later than three months of production date, compact packaging; 3. Deliverables are attached with inspection certificate issued within three months by factories with QC license granted by Thailand authorities.	by factories approved by SICOM from time to time and shall be packed in accordance with SICOM's prevailing shrink-wrap packing specifications.
Delivery Point	Shanghai, Qingdao, Kunming, Haikou, Tianjin, etc.	Subject to INE announcement.	FOB. The list of designated ports is Bangkok, Laem Chabang and Penang.	Delivery will be made, at the Buyer's option, either on Warehouse Delivery or FOB terms at port of loading. The Port of Loading will be at Seller's Option unless the Buyer selects Singapore as the Port of Loading. The list of designated ports is Singapore, Klang, Penang, Bangkok and Laem Chabang, etc.

Over the past few years, trading volume of natural rubbers futures from SHFE outnumbered that from TOCOM and SGX by a large margin. SHFE provides a reliable pricing basis as a point of reference for TOCOM and SGX. However, since there are differences in deliverables among these Exchanges, there's not much arbitrage opportunities. If TSR 20 is listed in INE, more arbitrage opportunities would arise. INE TSR 20 futures is traded in clean price and perform bonded delivery, i.e. imported rubber is exempted from customs and value-added tax. Brand registration and delivery warehouse has not been released. Fluctuations in exchange rate and transportation cost shall be considered if one would like to conduct cross market arbitrage among various Exchanges.

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Contact information:

International Business Dept.

Founder Cifco Futures Co., Ltd.

Tel: +86 10 85881336

Fax: +86 10 85881177

E-mail: gjywb@foundersc.com

Website: www.founderfu.com/en

22/F Taikang Financial Tower, Building1, 38# East 3rd Ring North Road, Chaoyang District, Beijing, P. R. China 100026

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