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GB/T 44333-2024 《Green Product Assessment —Refractory Materials》

Interpretation of the Chinese National Standard

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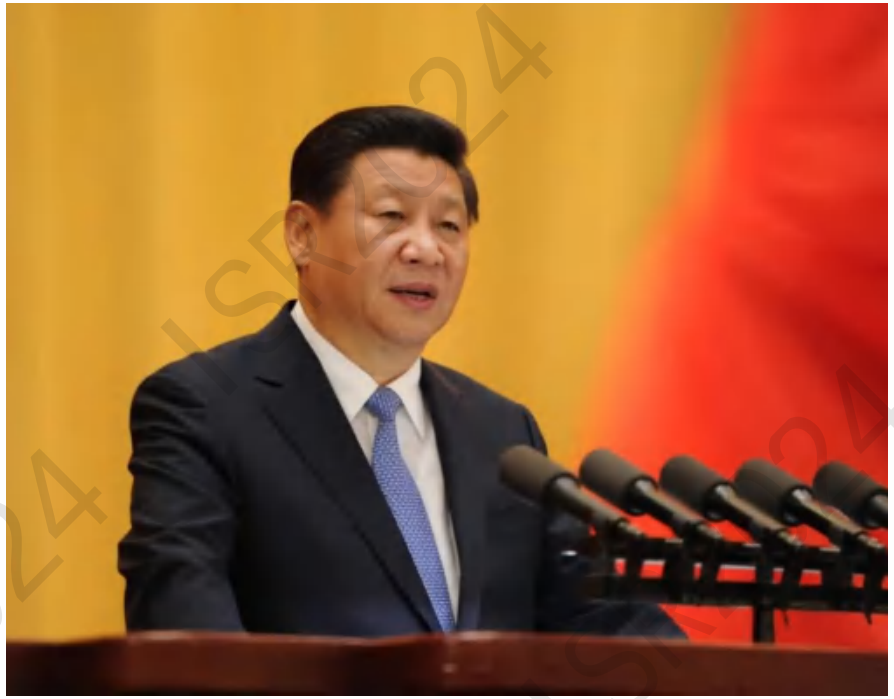
1. Introduction

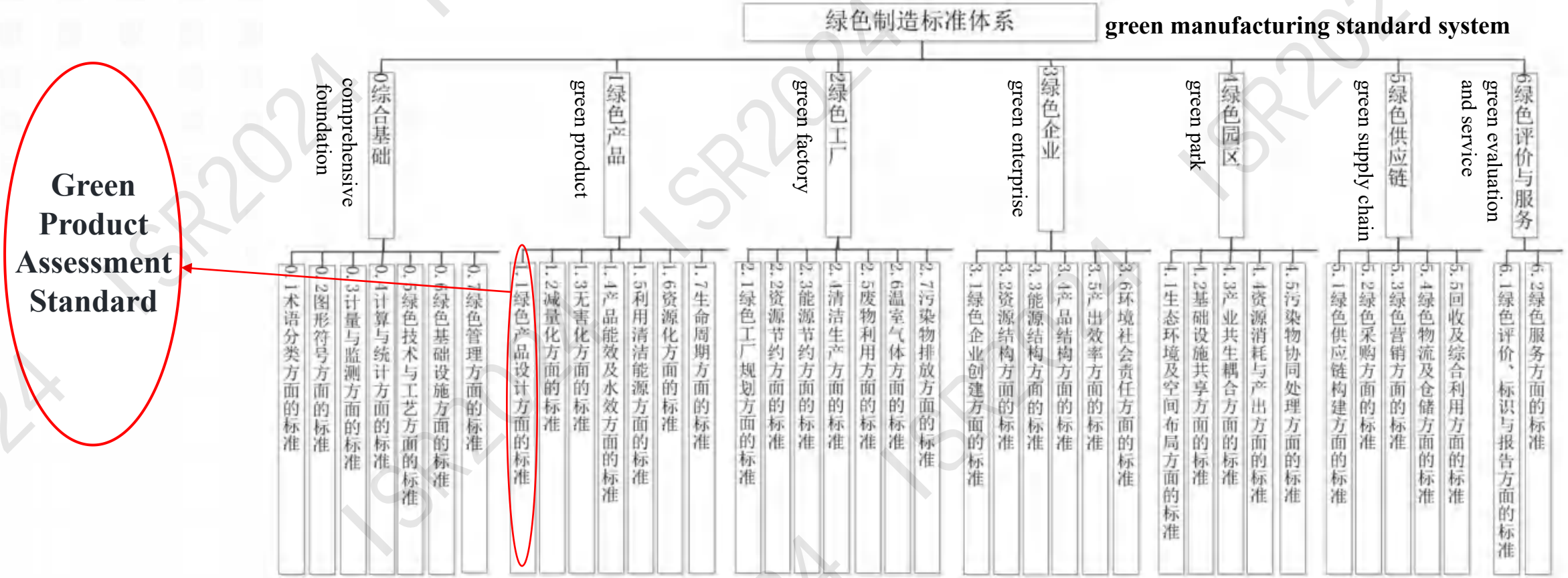
In 2015, President Xi Jinping proposed the major goal of “supply-sidestructural reform”, and vigorously developing green products and promoting the transformation of consumption patterns are the key to supply-sidestructural reform.



In 2016, the State Council issued the “**Opinions on Establishing a Unified Green Product Standard, Certification and Labeling System**”,it is pointed out that establishing a unified green product standard, certification and labeling system is an inevitable requirement for promoting the green and low-carbon circular development and cultivate the green markets. it is an important measure to strengthen supply-sidestructural reform and improve the quality and efficiency of green product supply, an urgent task to guide industrial transformation and upgrading, enhance China's manufacturing competitiveness, an effective way to lead green consumption, ensure and improve people's livelihood, and a practical need to fulfill international emission reduction commitments and enhance China's voice in global governance system.

1. Introduction

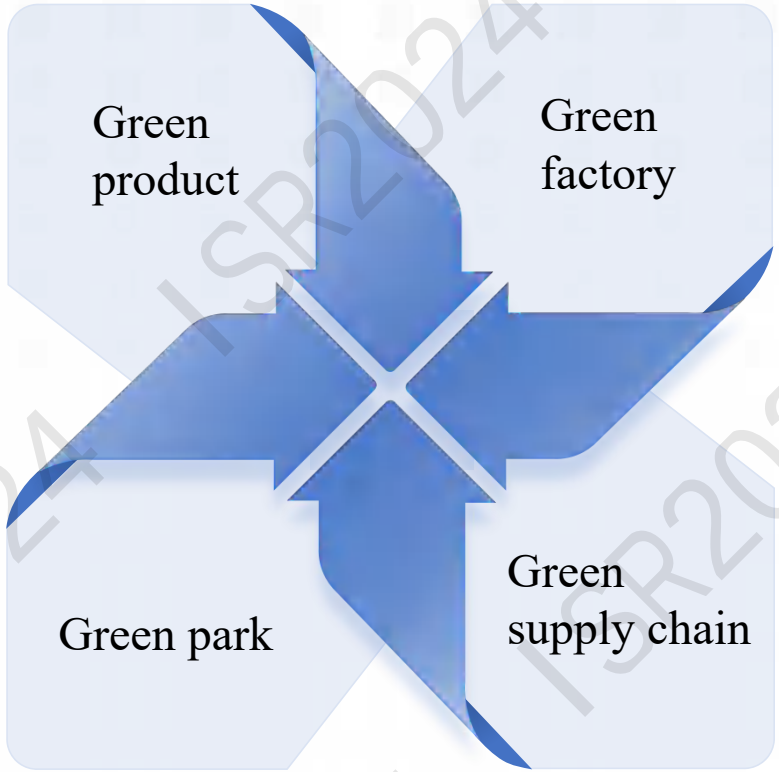
Ministry of Industry and Information Technology, Standardization Administration of China issued "Green Manufacturing Standard System Construction Guide"



1. Introduction

Ministry of Industry and Information Technology, Standardization Administration of China issued "Notice on the construction of green manufacturing system" (Office of Industry and Information Technology Section Letter [2016] No. 586)

It follows the principles of minimizing energy and resource consumption, minimizing ecological and environmental impact, and maximizing regeneration utilization rate.



In accordance with the principles of land intensification, clean production, waste resources, and low carbon energy.

Promote the demonstration of green parks, implement comprehensive energy and resource integration solutions for parks, and improve the efficiency of resource and energy utilization.

It is supported by leading enterprises in industries such as automobiles, electronic appliances, and communications of equipment, and supported by green supply standards and producer extension system.

1. Introduction

- China is the world's largest producer and consumer of refractory materials. In 2023, China's output of refractory materials will be more than 20 million tons. After use refractory materials more than 8 million tons.
- Refractory Materials is a resource-consuming and energy-consuming industry, so saving resources and energy, low-carbon manufacturing, and green environmental protection, is the goal pursued by more and more refractory materials enterprises. Green product assessment is the fundamental realization of green refractory materials.

World refractory materials regional output

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1. Introduction


ICS 13.020.10
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GB

中华人民共和国国家标准

GB/T 33761—2017

绿色产品评价通则

General principles for green product assessment

2017-05-12 发布　　2017-05-12 实施

中华人民共和国国家质量监督检验检疫总局
中国国家标准化管理委员会　发布

General principles for green product assessment

#	标准号	标准中文名称
1	GB/T 44009-2024	绿色产品评价 染料
2	GB/T 40718-2021	绿色产品评价 轮胎
3	GB/T 35607-2017	绿色产品评价 家具
4	GB/T 35602-2017	绿色产品评价 涂料
5	GB/T 43017-2023	绿色产品评价 照明产品
6	GB/T 39020-2020	绿色产品评价 洗涤用品
7	GB/T 35604-2017	绿色产品评价 建筑玻璃
8	GB/T 33761-2017	绿色产品评价通则
9	GB/T 37866-2019	绿色产品评价 塑料制品
10	GB/T 35603-2017	绿色产品评价 卫生陶瓷
11	GB/T 35611-2017	绿色产品评价 纺织产品
12	GB/T 42169-2022	绿色产品评价 家用燃气用具
13	GB/T 35605-2017	绿色产品评价 墙体材料
14	GB/T 35608-2017	绿色产品评价 绝热材料
15	GB/T 35610-2017	绿色产品评价 陶瓷砖（板）

#	计划号	项目名称
16	20240363-T-606	绿色产品评价 无机肥料
17	20240151-T-609	绿色产品评价 屋面瓦
18	20230644-T-609	绿色产品评价 墙体材料
19	20213137-T-609	绿色产品评价 卫生陶瓷
20	20213237-T-469	绿色产品评价 耐火材料
21	20204830-T-609	绿色产品评价 石材
22	20240547-T-605	绿色产品评价 铸铁管
23	20240154-T-609	绿色产品评价 道路用建筑制品
24	20220090-T-609	绿色产品评价 绝热材料
25	20202644-T-607	绿色产品评价 日用陶瓷
26	20211055-T-607	绿色产品评价 皮革、毛皮服饰产品
27	20232435-T-469	绿色产品评价 家用净水设备
28	20221020-T-609	绿色产品评价 陶瓷砖（板）
29	20213487-T-606	绿色产品评价 染料
30	20182166-T-606	绿色产品评价 轮胎

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1. Introduction


ICS 13.020.10
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GB

中华人民共和国国家标准

GB/T 44333—2024

GB/T 44333-2024

绿色产品评价 耐火材料

Green product assessment— Refractory materials

2024-08-23 发布　　2025-03-01 实施

国家市场监督管理总局
国家标准化管理委员会　发布

绿色产品评价 耐火材料

Green product assessment—Refractory materials

国家标准计划　制定　推荐性

国家标准计划《绿色产品评价 耐火材料》由 TC193（全国耐火材料标准化技术委员会）归口，TC193SC2（全国耐火材料标准化技术委员会产品分会）执行，主管部门为国家标准化管理委员会。拟实施日期：发布后6个月正式实施。

主要起草单位 中国国检测试控股集团股份有限公司、中钢集团洛阳耐火材料研究院有限公司、中国标准化研究院、山东耐火材料集团有限公司、海城市后英经贸集团有限公司、宜兴摩根热陶瓷有限公司、淄博艾杰旭刚玉材料有限公司、无锡市宜刚耐火材料有限公司、广东新岭南科技有限公司、机械工业第六设计研究院有限公司、奥镁（中国）有限公司、瑞泰科技股份有限公司、北京利尔高温材料股份有限公司、北京西普耐火材料有限公司、中钢洛耐（洛阳）新材料有限公司、江苏诺明高温材料股份有限公司、大石桥市金龙耐火材料有限公司、郑州市方安耐火材料有限公司、江苏晶鑫新材料股份有限公司、大石桥市中建镁砖有限公司、上海利尔耐火材料有限公司、辽宁中镁控股股份有限公司、浙江自立高温科技股份有限公司、安徽中材新材料科技有限公司、山西盂县西小坪耐火材料有限公司、孙水红市鑫达耐火材料制造有限公司、郑州安耐克实业有限公司、江苏丹耐刚玉材料有限公司、江苏嘉耐高温材料股份有限公司、河南中原特种耐火材料有限公司、中冶检测认证有限公司、郑州远东耐火材料有限公司、山西化新能源集团股份有限公司、鞍山市奥鞍耐火材料有限责任公司、郑州东方炉衬材料有限公司、瑞泰马钢新材料科技有限公司、浙江湖州义子岭耐火集团有限公司、营口全顺佳明耐火材料有限公司、河北国亮新材料股份有限公司、河南熔金高温材料股份有限公司、北京金隅通达耐火技术有限公司、青岛西海岸高新材料有限公司、山东嘉腾实业有限公司、郑州瑞泰耐火科技有限公司、郑州中科新材料有限公司、山东赢洲节能环保科技有限公司、山东万斯集团有限公司、海城利尔麦格西塔材料有限公司、淄博裕民基诺新材料有限公司、浙江嘉吉石化工程有限公司、郑州市奥达耐火材料有限公司、长兴兴摩新型耐火建材有限公司、江苏恒耐炉料集团有限公司、山西禄纬堡太钢耐火材料有限公司、江苏华奎光宇科技有限公司、维苏威高级陶瓷（中国）有限公司、辉县市东方耐火材料有限公司、武汉加星科技有限公司、浙江丽山耐火材料有限公司、焦作金鑫恒拓新材料股份有限公司、新密市振发耐火材料有限公司、淄博崇信耐火材料有限公司、安徽海螺暹罗耐火材料有限公司、江苏国豪耐火科技有限公司、郑州方信新材料有限公司、河南原动力耐火材料科技有限公司、河南省瑞泰科实业集团有限公司、宜兴市新凯耐火材料有限公司、武汉科技大学、江苏朗耐德耐火材料有限公司、郑州纬通电熔新材料科技有限公司、郑州荣盛窑炉耐火材料有限公司、中冶武汉冶金建筑研究院有限公司、宜兴市隆昌耐火材料有限公司、河南省恒力耐火材料有限公司、贵州省建材产品质量检验检测院、郑州安瑞耐材科技有限公司。

主要起草人 易帅、李红霞、邓丽曼、谢金莉、朱艺、宗建芳、彭西喜、闫培香、张新、钟应、司国栋、许坤、李连房、王文学、何俊杰、刘宗林、殷波、殷骏、夏兰、张同剑、李志军、裴雷平、宫利洋、刘华利、曾德林、赵新力、占磊、叶航、胡建辉、徐琳琳、赵伟、刘靖轩、颜浩、韩标、于洋、余光、方胜、钱晶、张军杰、付振才、张威、魏小雨、谢建雄、何健、李有奇、唐家彬、李广伟、李洪波、李维锋、李勇伟、马四凯、王树山、上官永强、鲍燕、魏国平、魏福德、朱卫科、秦银军、武会敏、王锦标、唐四新、李富朝、章道运、尹雄宝、袁明磊、洪锋、金从进、杨政宏、吕志毓、郑银龙、张秀华、田志宏、龙佑卫、李享儒、燕鹏飞、刘贵海、张鹏飞、闵有卓、卢咏明、崔任渠、王春强、翟松南、张连进、苗正、梁保青、赵臣瑞、马淑龙、李燕京、李勇、周爱宝、王立朋、王海啸、李炜、李远锦、

2. Principles for Determining Standard Reference Indexes

Applicability principle

Encourage the use of indicators in international or foreign relevant standards.

Representative principle

Select indicators that consumers are highly concerned about and have a significant impact on the environment and human health.

Compatibility principle

Taking into account the low carbon performance and quality performance of the product, reasonably determine the basic value of the index.

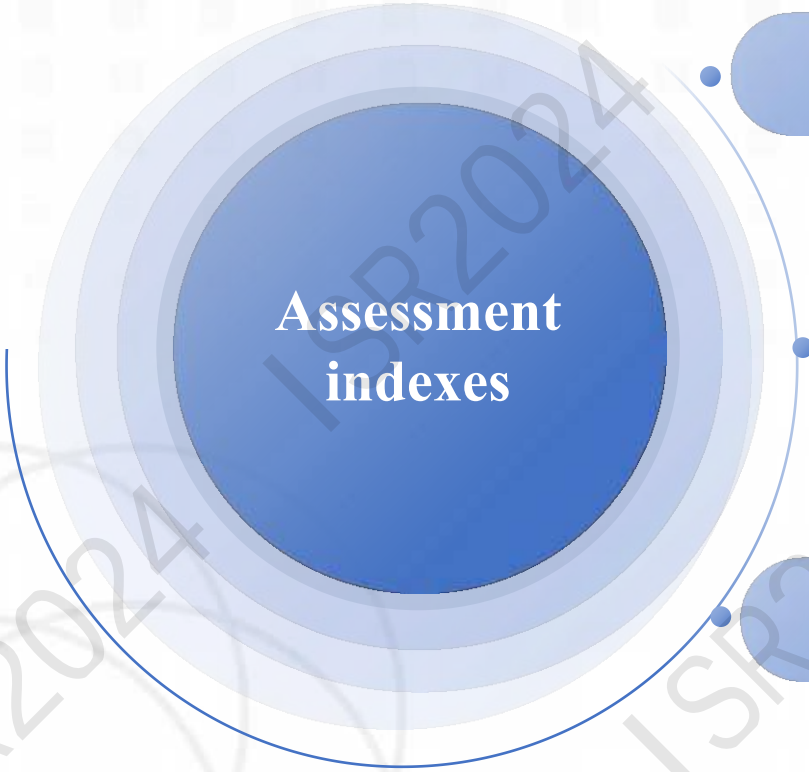
Life cycle concept

From acquisition raw material , production, use, waste and end-of-life cycle stages, select quantifiable and verifiable indicators.

Green high-end leading principle

The products that meet the green product assessment should be leading in the comparable products of the same kind.

3. System Framework of Assessment Indexes



- **Basic requirements**: The basic requirements include laws and regulations on energy conservation and environmental protection , process technology, management system and related product standards.
- **Assessment index requirements**: The assessment index requirements include resource property index, energy property index, environment property index, quality property index and low carbon property index.
- **Encouraging requirements**: Encouraging requirements include other encouraging requirements that the product or enterprises meet.

4. Main Contents of the Chinese National Standard

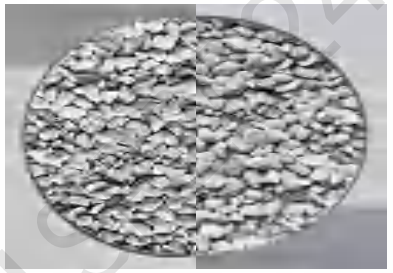
Scope of application

- The standard “Green Product Assessment—Refractory Materials” provides the terms and definitions, assessment indexes and assessment methods of green product assessment of refractory materials .
- This standard applies to the green product assessment for the following refractory materials.

Refractory materials

Dense shaped refractory products

Shaped insulating refractory products



Unshaped refractory materials

Pre-formed shapes

4. Main Contents of the Chinese National Standard

Assessment requirements - basic requirements

Enterprises shall meet the following requirements:

- —— The pollutant emission shall meet the requirements of related national or local standards without major safety and pollution incidents in recent three years;

- —— The total amount control of pollutants shall comply with national and local pollutant emission control indexes;

- ——Enterprise shall establish and implement its energy management system, environmental management system and quality management system accordance with GB/T 23331, GB/T 24001 and GB/T 19001;

- ——The collection, storage and disposal of general solid waste shall comply with the relevant standard of GB 18599. The storage of hazardous waste shall strictly comply with GB 18597, and the general industrial solid waste that factory cannot handle on their own shall be transferred to processing units with corresponding capabilities for processing;

4. Main Contents of the Chinese National Standard

Assessment requirements - basic requirements

Enterprises shall meet the following requirements:

• ——Enterprises shall carry out green design work for products in accordance with GB/T 24256, based on the concept of life cycle, they should continuously improve the green design of products in terms of resources, energy, environment and quality to achieve the goal of reduction, reuse and recycling, and provide self-evaluation reports that meet the standard requirements.

• —— Enterprises shall not use technology, process, equipment, and related substance that have been phased out or prohibited by the state or relevant departments; In the design and production process, requirements should be formulated based on the principles of resource conservation, energy conservation, and emission reduction.

• —— Packaging of products shall comply with the GB/T 191 and GB/T 31268.

• —— Quality level of products shall meet the requirements of relevant national or industry standards.

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes	Unit	Green benchmark product value	Green product value
Resource property	Recycling and utilization rate of solid waste generated by the production process	%	100	≥98
	Recycling and utilization rate of production wastewater	%	100	≥98
	Percent recovery	%	≥25	≥20
	Regeneration utilization rate	%	≥100	≥90

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes		Unit	Green benchmark product value	Green product value
Environmental property	Particulate matter	Insulating refractory	mg/m^3	≤20	≤20
		Other refractory	mg/m^3	≤10	≤10
	Sulfur dioxide		mg/m^3	≤50	≤50
	Total non-methane hydrocarbon		mg/m^3	≤30	≤30
	Nitrogen oxides (in NO_2 count)	The firing temperature < 1400℃	mg/m^3	≤100	≤100
		The firing temperature 1400℃~1700℃ (excluding 1700℃)	mg/m^3	≤200	≤200
		The firing temperature ≥ 1700℃	mg/m^3	≤300	≤300

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes	Unit	Green benchmark product value	Green product value
Low-carbon property	Carbon footprint of product	——	Provide carbon footprint report of product	

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes			Unit	Green benchmark product value	Green product value
Energy property	Comprehensive energy consumption per unit product of refractory raw material	Magnesium aluminate spinel	Fused magnesium aluminate spinel	kgce/t	≤185	≤192
			Sintered magnesium aluminate spinel	kgce/t	≤375	≤415
		Mullite	Fused mullite	kgce/t	≤171	≤174
			Sintered mullite	kgce/t	≤365	≤400
		Bauxite clinker	Shaft kiln burning block material	kgce/t	≤114	≤168
			Rotary kiln burning block material	kgce/t	≤205	≤223
			Tunnel kiln calcined homogenized material	kgce/t	≤215	≤242
		Shaft kiln clay clinker		kgce/t	≤ 67	≤ 75
		Sintered magnesia-MS97		kgce/t	≤ 90	≤105
		Sintered magnesia-MS95		kgce/t	≤180	≤200
		Sintered magnesia-MS92		kgce/t	≤223	≤255
		Fused magnesia		kgce/t	≤306	≤338
		White fused alumina		kgce/t	≤152	≤222
		Dense fused alumina		kgce/t	≤287	≤312
		Brown fused alumina		kgce/t	≤263	≤287
		Sintered alumina		kgce/t	≤99	≤114
		Fused zirconium mullite		kgce/t	≤170	≤175
		Fused pure calcium aluminate cement		kgce/t	≤170	≤175
		Sintered pure calcium aluminate cement		kgce/t	≤255	≤260
		α -alumina powder		kgce/t	≤195	≤210

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes			Unit	Green benchmark product value	Green product value
Energy property	Comprehensive energy consumption per unit product of dense shaped refractory products	Fireclay product	Fireclay refractory brick	kgce/t	≤108	≤129
			Low creep fireclay refractory brick	kgce/t	≤108	≤129
		High alumina product	High alumina brick	kgce/t	≤126	≤139
			Low creep high alumina brick	kgce/t	≤126	≤139
			Guimo brick	kgce/t	≤120	≤160
		Silica product	Silica brick	kgce/t	≤150	≤210
		Magnesia product	Magnesia brick-MZ 92	kgce/t	≤138	≤184
			Magnesia Brick-MZ 95	kgce/t	≤153	≤192
			Magnesia brick-MZ-96, MZ-97, and MZ-98	kgce/t	≤167	≤205
		Spinel product	Magnesia alumina spinel brick	kgce/t	≤190	≤240
			Periclase-hercynite brick	kgce/t	≤134	≤165
		Mullite product	Corundum-mullite brick	kgce/t	≤180	≤240
			High-purity mullite brick	kgce/t	≤160	≤200
		Nitride-bound silicon carbide brick (electric kiln)		kgce/t	≤240	≤270
		Magnesia-calcia brick		kgce/t	≤146	≤174

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes			Unit	Green benchmark product value	Green product value
Energy property	Comprehensive energy consumption per unit product of dense shaped refractory products	Magnesia carbon brick, alumina-magnesia-carbon brick		kgce/t	≤30	≤35
		Functional refractories for continuous casting		kgce/t	≤364	≤420
		Slide gate fired at high temperature (~1500℃)		kgce/t	≤455	≤750
		Slide gate for medium temperature treatment		kgce/t	≤238	≤536
		Slide gate for low temperature treatment		kgce/t	≤62	≤100
		Fused cast refractory	Fused cast AZS refractories	Ordinary casting	kgce/t	≤282	≤394
				Non shrinkage casting	kgce/t	≤510	≤709
			Fused cast α-β alumina refractories	Ordinary casting	kgce/t	≤923	≤943
				Non shrinkage casting	kgce/t	≤1536	≤1557
			Fused cast β alumina refractories	Ordinary casting	kgce/t	≤923	≤943
				Non shrinkage casting	kgce/t	≤1536	≤1557

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes		Unit	Green benchmark product value	Green product value
Energy property	Comprehensive energy consumption per unit product of shaped insulating refractory products	Mullite insulating refractory	kgce/t	≤270	≤300
		Fireclay insulating refractory	kgce/t	≤125	≤190
		High alumina insulating refractory	kgce/t	≤235	≤285
	Comprehensive energy consumption per unit product of unshaped refractory materials and pre-formed shapes	Bulk material	kgce/t	≤8.5	≤9
		Pre-formed shapes (drying treatment)	kgce/t	≤80	≤93

4. Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes			Unit	Base value	Judgment basis
Character property	Clay products	Fireclay refractory brick	Apparent porosity	%	≤20	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1400	YB/T 370
		Low creep fireclay refractory brick	Apparent porosity	%	≤15	GB/T 2997
			Creep rate (1280℃×25h, 0.2MPa)	%	≤0.25	GB/T 5073
	High alumina products	High alumina brick	Apparent porosity	%	≤21	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1530	YB/T 370
		Low creep high alumina brick	Apparent porosity	%	≤18	GB/T 2997
			Creep rate (1550℃×50h, 0.2MPa)	%	≤0.8	GB/T 5073
		Guimo brick	Apparent porosity	%	≤17	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1650	YB/T 370
	Silica product	Silica brick	Apparent porosity	%	≤21	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1680	YB/T 370
	Magnesia product	Magnesia brick	Apparent porosity	%	≤16	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1700	YB/T 370
	Spinel product	Magnesia alumina spinel brick	Apparent porosity	%	≤17	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1700	YB/T 370
		Periclase-hercynite brick	Apparent porosity	%	≤18	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1650	YB/T 370
	Mullite product	Corundum-mullite brick	Apparent porosity	%	≤15	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1700	YB/T 370
		High-purity mullite brick	Apparent porosity	%	≤18	GB/T 2997
			Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1680	YB/T 370

4 Main Contents of the Chinese National Standard

Assessment requirements -- assessment index requirements

First-class indexes	Second-class indexes				Unit	Base value	Judgment standard
Character property	Nitride-bound silicon carbide brick (electric kiln)			Apparent porosity	%	≤17	GB/T 2997
	Magnesia-calcia brick			Apparent porosity	%	≤15	GB/T 2997
				Refractoriness under load ($T_{0.6}$,0.2MPa)	℃	≥1700	YB/T 370
	Magnesia carbon brick			Apparent porosity	%	≤3.0	GB/T 2997
	Alumina-magnesia-carbon brick			Apparent porosity	%	≤7.0	GB/T 2997
	Functional refractories for continuous casting			Apparent porosity	%	≤19	GB/T 2997
	Fused cast refractory	Fused cast AZS refractories	AZS33	tatic corrosion resistance to molten glass (soda-lime glass,1500℃×36h)	mm/24h	≤1.6	JC/T 806
				Glass exudation（1500℃×4h）	%	≤2.0	JC/T 493
			AZS36	Static corrosion resistance to molten glass （soda-lime glass,1500℃×36h）	mm/24h	≤1.5	JC/T 806
				Glass exudation（1500℃×4h）	%	≤3.0	JC/T 493
			AZS41	Static corrosion resistance to molten glass （soda-lime glass,1500℃×36h）	mm/24h	≤1.3	JC/T 806
				Glass exudation（1500℃×4h）	%	≤3.0	JC/T 493
		Fused cast alumina refractories		Static corrosion resistance to molten glass （soda-lime glass,1350℃×48h）	mm/24h	≤0.4	JC/T 806
	Shaped insulating refractory products	Mullite insulating refractory		Thermal conductivity (Average of 350℃)	W/(m·K)	≤0.20	YB/T 4130
				Cold compressive strength	MPa	≥1.0	GB/T 5072
		Fireclay insulating refractory		Thermal conductivity (Average of 350℃)	W/(m·K)	≤0.23	YB/T 4130
				Cold compressive strength	MPa	≥1.0	GB/T 5072
		High alumina insulating refractory		Thermal conductivity (Average of 350℃)	W/(m·K)	≤0.20	YB/T 4130
				Cold compressive strength	MPa	≥1.2	GB/T 5072

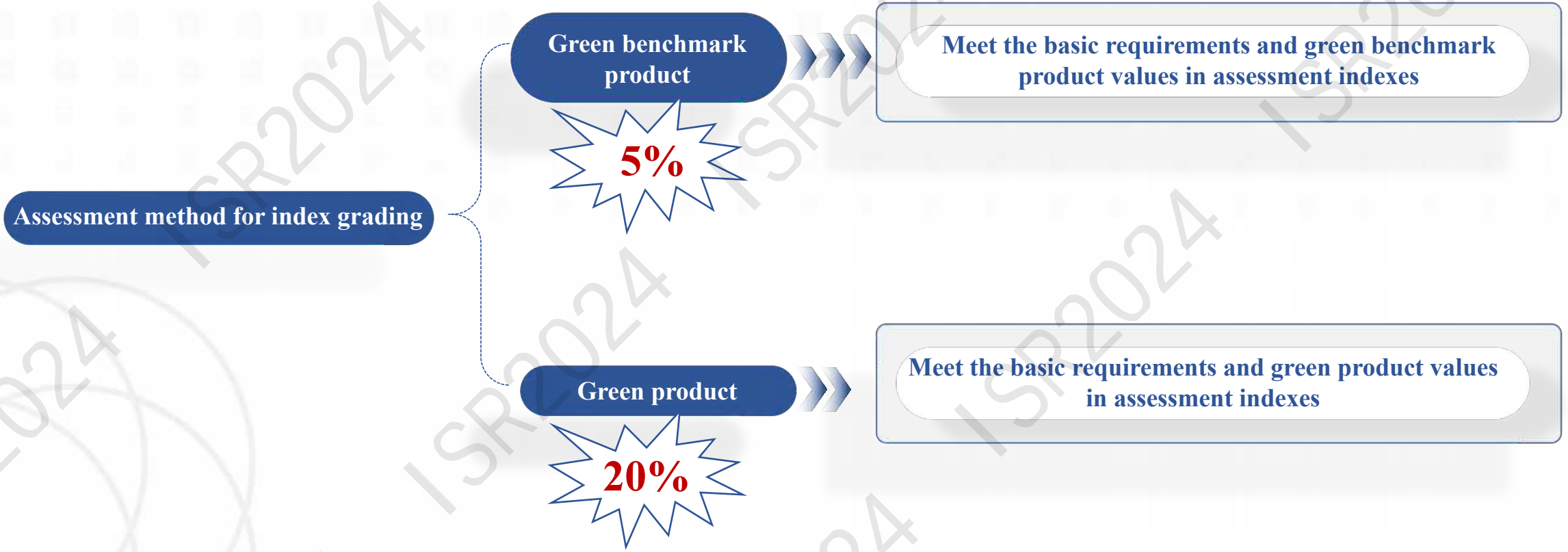
4. Main Contents of the Chinese National Standard

Assessment requirements -- encouraging requirements

- According to the extended producer responsibility system, enterprises are required to provide recycling and disposal methods for damaged and discarded products.
- Enterprises use green electricity and provide certificates that meet the requirements of relevant national policies and regulations.
- Enterprises provide energy saving and carbon reduction reports, including but not limited to enterprise energy consumption information, greenhouse gas emission information, energy saving and carbon reduction measures and energy saving and carbon reduction effects.

4. Main Contents of the Chinese National Standard

Assessment methodology



4. Main Contents of the Chinese National Standard

- Appendix A provides the calculation formulas of recycling and utilization rate of solid waste, recycling and utilization rate of production wastewater, percent recovery, recycling rate, comprehensive energy consumption of products and comprehensive energy consumption per unit product.

- Appendix B specifies the carbon footprint quantification method and framework for declaration report.

表B.1 基本信息表

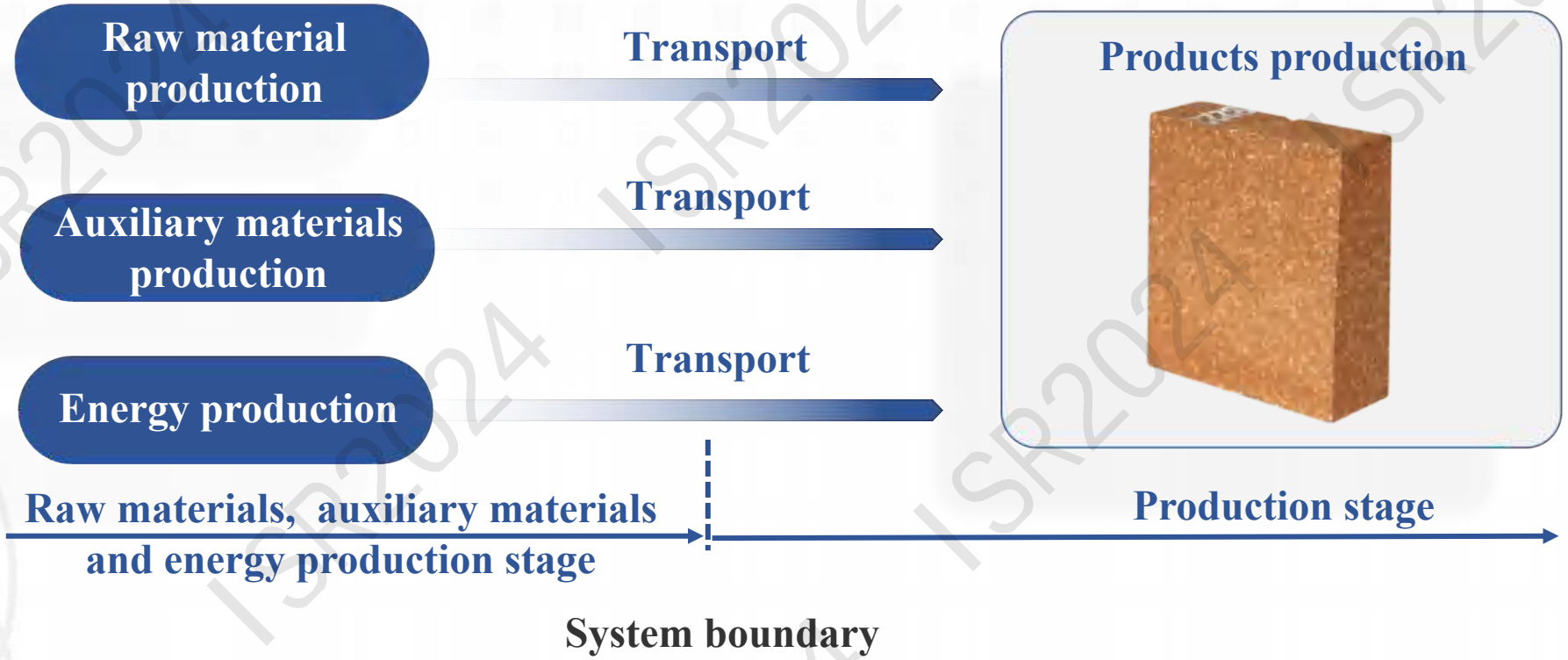
企业信息			
申请方企业名称	XXXXXX公司	统一社会信用代码	XXXXXX
申请方企业地址	XXX省XXX市XXX区XXX号		
生产方企业名称	XXXXXX公司		
生产方企业地址	XXX省XXX市XXX区XXX号		
联系人	XXX	联系电话	XXX
产品碳足迹评价			
产品类别	RH-镁尖晶石砖		
产品型号	XXX		
产品执行标准	GB/T 2992、GB/T 20511		
产品主要技术参数和功能	体积密度：XX g/cm³，显气孔率：XX %，常温耐压强度：XX MPa 主要应用于XX窑炉XX部位		
功能单位	1kg RH-镁尖晶石砖		
技术依据	ISO 14067 温室气体 产品碳足迹 量化要求和指南（Greenhouse gases-Carbon footprint of products-Requirements and guidelines for quantification）		
系统边界	从资源开采、原辅料生产及运输，能源生产及运输，产品生产到产品出厂（从摇篮到大门）		
碳足迹结果	XX kg CO_2eq		
签发日期	20XX-XX-XX		
有效期	5年		

批准：XXX　　审核：XXX　　编制：XXX

4. Main Contents of the Chinese National Standard

Carbon footprint example

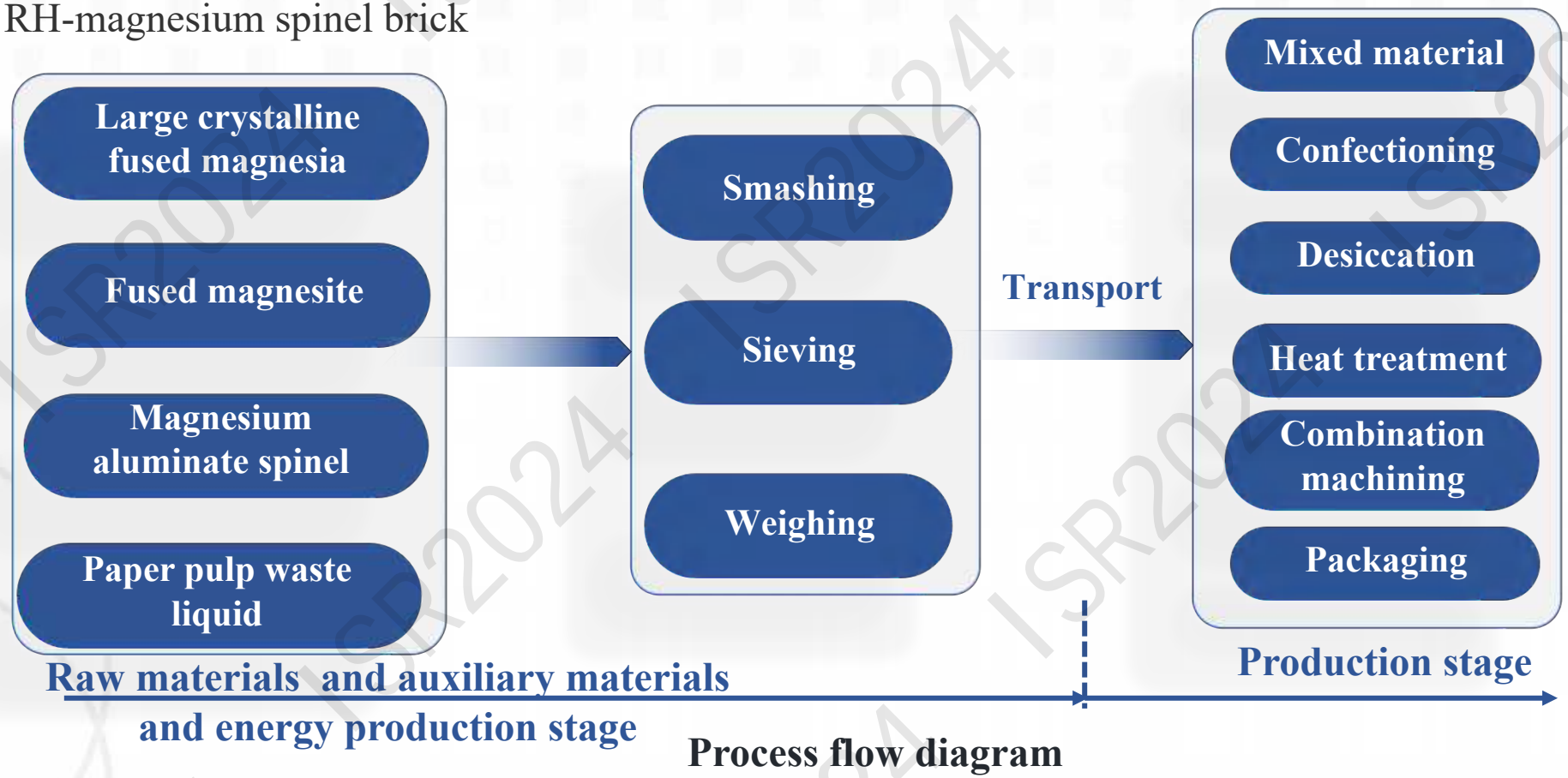
- 1kg RH-magnesium spinel brick



4. Main Contents of the Chinese National Standard

Carbon footprint example

- 1kg RH-magnesium spinel brick



Process flow diagram

4. Main Contents of the Chinese National Standard

Carbon footprint example

Consumption data of raw materials and auxiliary

Raw material name	Quantity	Unit	Mode of transport (car, train, plane, ship or other means)	Transport distance /km
Large crystalline fused magnesia	764.8	ton	Automobile transport	/
Fused magnesia	47.8	ton	Automobile transport	/
Magnesium aluminate spinel	95.6	ton	Automobile transport	/
Paper pulp waste liquid	47.8	ton	Automobile transport	/

Energy consumption data

Name	Quantity	Unit	Mode of transport	Transport distance /km
Electricity	2349163	Kilowatt-hour	Cable	/
Natural gas	49497	Stere	Direct pipeline supply	/

Air pollutant emission data

Name	Quantity	Unit
Particulate matter	0.005	ton
Sulfur dioxide	3.034	ton
nitrogen oxide	0.15	ton

4. Main Contents of the Chinese National Standard

Carbon footprint example

$$CFP_{GHG} = \sum (Active\ data_i \times Emission\ factor_i \times GWP_i)$$

Active data$_i$—Within the system boundary, the greenhouse gas emissions and removals related data (including primary data and secondary data) of the i-th activity in each functional unit (reporting unit) shall be determined, with the unit depending on the specific emission source;

Emission factor$_i$—The greenhouse gas emission factor corresponding to the i-th activity, with units matching the greenhouse gas activity data;

GWP$_i$—The global warming potential (GWP) value corresponding to the i-th activity, with data referenced from the assessment reports provided by the Intergovernmental Panel on Climate Change (IPCC).

Carbon emission of RH-magnesium spinel brick

3.1 kgCO_2e/kg

国检集团

5. Significance of the Chinese National Standard Implementation

- It is in line with the requirements of comprehensive green transformation of national economic and social development.
- It is conducive to guiding the green development of the industry, further eliminating backward technology, backward products and backward production capacity, and promoting the new reduction, harmless, reusability and recyclable refractory materials.
- We will jointly promote carbon reduction, pollution reduction, green expansion and growth, and accelerate the green and low-carbon transformation of the industrial structure and energy structure.
- Refractory Materials Green Product Assessment can guide the development of green product certification and provide guidance for new products and new formats.
- It provides practical test means and evaluation method for refractory materials green product assessment in China.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经济社会发展全面绿色转型的意见
（2024年7月31日）

5. Significance of the Chinese National Standard Implementation

Market recognition

The use of green products will become a broad consensus of the industry and society, in line with the national policy guidance and the growing green demand of the whole society.

Project bidding, procurement bonus items

Necessary conditions for becoming a qualified supplier list of large party A and bonus points in bidding.

Green product certification

5. Significance of the Chinese National Standard Implementation

Enterprise brand appreciation

Green products can make the enterprise brand deeply rooted in the hearts of the people, is to show the concept of green development of enterprises, prove the strength of enterprises, scientific and technological level and product quality, reflect the corporate social and industrial responsibility and establish an important means of corporate brand.

Effectively avoid green trade barriers to exports

The world's first "carbon tariff", the European Union's Carbon Border Adjustment Mechanism (CBAM), has begun trial operation and will be formally implemented in 2026.

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6. Green service work of CTC

CTC has long been committed to research and practice work in green and low-carbon fields, such as green building materials, life cycle assessment, carbon footprint, water footprint and other fields. CTC is the main force and core technological force of China's green building aaterials certification.

- China Green Product Certification Building Materials Group leader unit
- Member of the National Green Products Standardization General Group
- Evaluation Center of Industrial Energy Saving and Green Development, Ministry of Industry and Information Technology of the People’s Republic of China
- State Key Laboratory of Green Building Materials, China General Building Materials Institute
- With 34 national/industrial product quality testing center of inspection and certification integration organization

国检集团

6. Green service work of CTC

- Undertaking more than 50 national and provincial research projects in the field of green building materials
- Leading editor in chief of more than 100 national, industrial and group standards related to green building materials
- More than 10 provincial and ministerial science and technology awards related to green building materials
- China Green Product Certification implementation rules (building materials field) editor-in-chief unit
- Technology and practice pioneer of LCA, EDP, carbonfootprint and water footprint in the field of building materials
- Green building materials cooperation customers cover leading enterprises in various industries

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Thank you

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