Total directory

2025 CONTENTS

| 1 SPECIAL AND COMPREHENSIVE REVIEW Biological enzyme genetic modification promotes the scientific |
|---|
| development of environmentally friendly degradation |
| · · · · · · · · · · · · · · · · · · · |
| plastic recycling |
| Discussion on the transformation plan of online automatic |
| width and thickness measurement for tire half-finished |
| components |
| Feng Pan, Zhou Yunlong, Zhao Xiaofeng, Guo Xun (1-12) |
| Discussion on the rubber sheet thermal lamination method and |
| equipment of tire parts |
| The current situation and future development of energy saving |
| and emission reduction of rubber and plastic |
| industrial enterprises |
| Process introduction and market application of transparent |
| abs thermoplastic |
| Li Zhaoqi, Ding Qiangqiang, Shi Shaosong, Cui Zaifei (3-1) |
| Planning, development and application of automatic |
| packaging for BOPA film industryLin Guichuan (3-5) |
| Discussion on the achievements of domestic tire production in |
| Zhuneng Haerhusu coal mine |
| Analysis of energy-saving, quality improvement and cost |
| reduction renovation plan for internal mixer |
| Gao Wei, Wang Qiying, Li Mingchun (4-5) |
| Development and promotion of processing technology for |
| foshan long glass fiber reinforced thermoplastic composite |
| materials (Part 1) |
| Li Wei, Liao Haofei, Zhang Haichen, Tong Jun (5-1) |
| Impact of China's large-scale production capacity transfer of |
| new inflatable rubber tires on its export trade |
| Fang Yini, Wang Siyi (5-9) |
| Development and promotion of processing technology for |
| foshan long glass fiber reinforced thermoplastic |
| composite materials (Part 2)Li Wei, Liao Haofei, |
| Zhang Haichen, Tong Jun (6-1) |
| Innovative application and industrial transformation of motor |
| unwinding in the bonding process of conveyor belt |
| rolling machine |
| Exploration of EAM application in tire production equipment |
| management Liu Ning, Jiang Binbin (7-1) |
| Exploring the hazards of microplastics to humans and methods |
| of controlTao Yi, Zhou Xin, Tao Yongliang (7-4) |
| Exploration of AI based healthy pyrolysis of waste plastics (Part |
| 1)Zhang Yougen (8-1) |
| Analysis and evaluation of the world rubber machinery industry |
| in 2024 |
| Non-drying injection molding machine is the direction of |
| energy-saving, low-carbon and green injection molding |
| |
| Exploration of Al based healthy pyrolysis of waste plastics(Part |
| 2) |
| Analysis of the current status and future development trends of |
| polyurethane casting machines |
| Guo Yande, Song Zongxiang (9-9) |

Current situation and development trend of electric heating for tire curing press in ChinaZhang Yang (9-14) Progress in the application of nucleating agents for polypropyleneYu Yang, Shen Guoliang, Xu Tiejun, Wen Ruiyang (10-1) Comprehensive energy-saving measures and development trends for rubber tire vulcanization steam systems and compressed air systems.......Zhang Kui, Jin Feng, Luan Hedong, Wang Qiuying, Zhang Qian (11-1) Exploration of the process of depolymerizing waste PET bottles using ethylene glycol Yu Yang, Shen Guoliang, Xu Tiejun, Wen Ruiyang (12-1) Analysis of the "boring instead of grinding" manufacturing optimization project for the barrel of large extrusion granulation units......Yu Ying, Yue Guangli (12-5) 2 THEORY AND RESEARCH Research on the microstructure and mechanical properties of PEEK composite 3D printed prefabricated wireYu Weiyou, Yang Shuai, Chen Yi, Zhang Hao, Li Bingxu, Liu Yan, Liang Fei, Zhang Bing (1-15) Research on control of defective tire debris based on intelligenceZhu Pingli (1-20) Study of mechanical properties of ABS as affected by solvent and resin compositionLi Haikuan, Gao Lingqiang, Wen Haoyu, Huang Wanrui (2-9) Research on the uniformity of electromagnetic heating in solid tires...... He Quan, Liu Qianwei, Jiang Yongfu, Xia Houhui (2-13) Preparation and performance study of PETG..Wang Kaili (3-10) Research and application of explosion proof safety technology Research on the application of high gloss scratch resistant and spray free ABS injection molding packaging ... Xiong Jian (4-11) Research on smoke collection in tire factories Synthesis and performance study of enzymatic hydrolyzed lignin based epoxy resin.......Chen Shiqi, Xu Jianhui, Wang Jie, Huang Hao, Wang Xuanlun (5-13) Research on the specific path of intelligent transformation for rubber equipment enterprises Research on the high-value application of PET through physical recycling Deng Xiaoliang, Zhou Xin, Zhou Yi, Wei Yang (7-9) Optimization study on cooling system of X-ray inspection Research on improving the series design of rubber and plastic machinery fasteners based on the three standard

izations concept......Wang Jinxia (8-18) Comprehensive investigation into the replacement of steam

.....Song Yuetao, Cao Yongfei, Ding Qianggiang, Li Zhaoqi,

Shi Shaosong, Cui Zaifei (8-22)

cooling with electric cooling in tire factories

| Research on the path of enterprise clean energy transformation: taking the "coal to gas" project of Double Coin Group as an example | Preparation and performance study of paint free high gloss black ABS composite materials |
|--|---|
| Research status and analysis of environmentally friendly plasticizersLu Dezhi, Liu Wei, Zhang Zhen, Li Qingxiang (9-27) Study on the development of carbon neutral technologies in the full life cycle of tires | Study on the properties of nitrile rubber/chloroprene rubber blendsZeng Fanwei, Song Haoyu, Chang Jiabing (11-36) The influence of electronic fluorinated fluid on the properties of ethylene-propylene-diene monomer rubber with different vulcanization systems |
| esLi Bingxu, Li Bin, Zhang Bing (11-13) Study on the stress concentration factor of the connecting rod in the tire shaping and curing pressHuang Shuwei (12-10) Research on processing technology and properties of low-viscosity adhesive sheetsZhang Dianchao, Feng Chunming, Yang Tianyu, Jin Xia (12-16) | 4 MACHINERY AND MOULD Improvement of processing technology for reducer box |
| 3 MATERIALS AND FORMULATIONS Research on the application of different types of carbon black in the formulation of natural rubber systemLi Weige, Feng Pan, Wang Nuan, Shen Chunhe (1-37) Application performance of 500 mesh iron powder filled natural rubber | Introduction and analysis of the functions of rubber blocking plate devices with different structural forms in the open mill |
| Lin Guangyi, Ma Huazhang, Lin Zetao, Niu Yuanyuan (3-40) Application of chlorinated butyl rubber in semi steel radial tires Yang Jiao, Bai Ru, Xue Dan, Li Fengwei, Shen Chunhe (4-43) Application of styrene butadiene rubber SBR152 in ultra-high | Analysis of the main factors affecting the smooth rotation of the mold adjustment mechanism |
| performance tread formulation | 5 NEW TECHNOLOGIES AND NEW PRODUCTS A new design of rotor shaft end sealing structure - stepped typeKang Pengzhi, Qin Enchen, Liu Qilin, Liu Bing (1-30) Automatic weighing and feeding system for rubber sheet/additives in intelligent kneading machines |

2025年 第**51**卷 • **2** •

......Xu Yunxiang, Chen Jie, Wang Xuanlun (8-45)

.....Liu Jinyi, Yin Wenshan (2-22)

Total directory

| A tire unloading manipulator with self inspection function | 8 PRODUCT AND DESIGN Structural design and finite element simulation of POE feed |
|--|--|
| A kind of type of buckle ring support device for tire building | pipe for high viscosity melt of screw extruder |
| machine Wang Hongzhi, Deng Jie, Fu Lan, Li Lianhui (4-21) | Zhang Xiao, Zhao Zonghua, Yu Changgeng, Lei Ganggang, Liang Xiaogang (1-66) |
| Preparation and application study of an interfacial binder for | Efficiency calculation of gearbox for twin-screw extruder |
| space compositesHe Chaojin (10-20) | Zhang Jun, Wu Mingjun, Ji Yao, Bi Chao, He Zhicong (1-71) |
| Brief introduction to the development of a kind of one-touch | |
| automatic mold adjusting device for curing press | Finite element analysis of thermal fluid solid coupling of twin- |
| Ji Fugao, Ding Zhentang, Dou Hongyun (10-25) | screw extruder barrelZhang Xiao, Zhao Zonghua, |
| Design of 235/45 R18 electric car tire | Yu Changgeng, Lei Ganggang, Liang Xiaogang (2-68) |
| Song Qian, Du Shuai, Li Xiaoming, Feng Tingting (12-21) | Design and exploration of inverted buckle structure for plastic |
| Design of the 335/80R20 off-road tubeless all-steel radial tire | packaging |
| Lei Taiwei, Zhao Yibin, Tian Weijuan, Song Qian, | Design of assembly fixture for car door outer handle |
| Yao Na (12-25) | component |
| , | Injection molding process and mold design for fan grille |
| | retaining ringDing Yongfeng, Zhang Jie, Wang Ziqi, |
| 6 EQUIPMENT MANAGEMENT AND MAINTENANCE | Long Chanjuan, He Xiaohui, Wang Jun (5-71) |
| Brief description of dismantling, installation and commissioning | Design of injection mold for printer ink cartridge shield based |
| at the major overhaul site of the internal mixer | on moldflow analysisChen Chun, Yang Cuiying, |
| Kang Pengzhi, Liu Pei, Qin Enchen, Liu Bing (2-56) | Wang Yongli, Jiao Li, Deng Chenghua (6-62) |
| Modification practice and benefit analysis of liquid level | Optimum design of steam chamber of tire curing press |
| drainage system of curing press | Zhang Qishen(6-69) |
| Automatic detection of internal pressure leakage in tire curing | Static analysis and optimization design of steel frame structure |
| bladders Deng Haishan (8-55) | for thin film melt extrusion blow molding process |
| Control and benefit analysis of equipment utilization rate in tire | Xu Feng, He Qiang (7-62) |
| production enterprises | Installation method of GK series mixer rotor sealing device |
| | Lu Yichao (8-36) |
| Upgrade and transformation plan of tire winding machine and | Improvement of hole displacement process for antenna |
| benefit analysisSong Yuetao, Cao Yongfei, | installation cover partsWang Linfeng, Meng Hang (9-70) |
| Ding Qiangqiang, Li Zhaoqi, Shi Shaosong, Cui Zaifei (9-61) | Structural design of a new type of dual anti-counterfeiting |
| Selection and effect analysis of common energy management | bottle cap |
| · | Analysis of beam deflection in mechanical dual-mold tire |
| models in tire production enterprises | curing pressHuang Shuwei (11-67) |
| | |
| A brief analysis of considerations in the upgrading and | 9 TEST AND ANALYSIS |
| renovation of internal mixers | Analysis of the effect of positioning deviation of thrust bearings |
| Yu Jiang, Tian Huina, Gao Yuru, Liang Zhifu (11-55) | in reducers on abnormal radial runout of shaft systems |
| Inspection and maintenance of rubber extruder | Zhang Bochao (1-46) |
| Zhang Hao (12-63) | Finite element analysis and fatigue prediction of injection |
| | molding machine pull rod |
| 7 INDUSTRIAL AUTOMATION | Analysis of simulation study on micro foaming mold flow of fast |
| Bridging the future - application of LCCF library functions | food bowl with in-mold labeling |
| | Shi Xiaoqing, Yang Juncai, Chen Chihui (1-54) |
| Application of servo control system in fiber sprayer | Analysis of extrusion process for polyethylene and nylon |
| Li Minghao (3-63) | double-layered jacket optical fiber cable |
| Control method of tire building machine inverter based on | |
| | Yang Wenbo, Pan Jinhua, Zhang Qisheng, He Xinlin (2-51) |
| industrial EthernetYang Ming, Liu Yuanzheng (4-69) | A example of a silicone rubber injection-molded aluminum |
| Introduction to various implementation methods for the | alloy cavityLi Hongying (3-46) |
| formula function of blown film unit | Strength analysis and optimization of output shaft for co rotating |
| Lin Depo, Lin Jiebo, Chen Jingxu (6-53) | twin-screw extruder transmission box |
| Comprehensive application of ABPLC, Yingfukang servo | Zhang Xiao, Ma Yongshou, Liang Xiaogang (3-50) |
| and Huichuan frequency conversion based on EtherNe t/IP | Finite element analysis of the transmission box body of high |
| protocol in tire building machine Wei Maoyong (6-58) | torque co directional twin-screw extruder |
| Analysis and application of profinet communication for high | Lei Ganggang, Zhang Xiao, Ma Yongshou, |
| voltage inverter in the control system of mixing machine | Liang Xiaogang (4-52) |
| Cai Chao, Cai Xiana, 7hana 7hiaiana, Yana Fan (7-55) | Passenger car tire hydroplaning performance testing and |

• **3** • 第**51**卷 第**12**期

influencing factor analysisZhang Yong (4-58)

| Determination and analysis of tin in impact modified polyvinyl chloride (PVC-M) water supply pipes and fittings | Research on fire hazard investigation and countermeasures of rubber mixing process in tire factory based on HAZOP deviation analysis method |
|--|--|
| Guohui, Zhang Bing (6-39) The influence of vehicle usage conditions on tire rolling resistanceQu Canming, Mai Qunyou, Zhang Hongbin (6-44) Dynamic balance performance of car tires | Research on collaborative design of low rolling resistance performance for new energy tires |
| the double rubber expansion joint flange of diesel engines in nuclear power plants | 11 TECHNOLOGY AND APPLICATION OF VEHICLE PRODUCTS Design of a new energy vehicle specific tireZhang Ning, Chen Hailong, Jiang Tingting, Li Haiyan (1-25) Design of semi-automatic assembly machine clamp equipment for door lock handle components of car |
| Feasibility analysis, taboos, and countermeasures for the optimal optimization of the structure scheme of the partition cylinder and injection mold Yuan Kaibo, Wen Genbao (10-61) Analysis of the impact of improved spiral structure of the casting roll on the uniformity of roll surface temperature Lin Xu, Yang Yuxin, He Qiang, Huang Zhigao (10-65) Reason analysis and measures for reducing time and improving efficiency in tire vulcanization Ren Qiaowei, Tan Miao, Li Xiaolin, Dang Fei, Du Fan (11-43) Analysis and research on honeycomb insulation board for tire curing press | Thao Yibin, Han Tao (11-19) 12 MANUFACTURING AND PROCESS CONTROL Application of 3D laser scanning in the production and manufacturing of internal mixer rotors Chen Xingzhong, Jin Qinglei, Qin Enchen, Liu Xiongwei (3-55) Design and application of a new negative pressure control program |
| in triangle fitting machine | 13 PROCESS AND EQUIPMENTS Influence of vulcanization conditions on the application performance of nitrile gloves |
| 10 ENVIRONMENTAL PROTECTION AND ENERGY SAVING ADN SAFETY Application and benefit analysis of new energy in tire production enterprises | Research on the process of electric heating nitrogen curing for bias ply tiresZhang Huajun, Fan Peilin, Ren Pengjie, Ding Zhaoyang, Dai Jiajun (2-38) |

2025年 第**51**卷 • **4** •

Total directory

| Mold design and process control of PBT color strip sleeve | 15 ENGINEERING DESIGN |
|--|--|
| | Design and research of rubber air spring torsion performance |
| Performance optimization and research of hydraulic power | test device |
| system of hydraulic curing pressHu Yurong (3-32) | Lin Dawen, Peng Liqun, Huang Tao, Wang Jin (7-69) |
| Process method for machining rotors based on MAZAK E670H | The application of PDMS in rubber factories design |
| turning milling composite machining Chen Jian (4-33) | Luan Hedong (12-73) |
| Development and application of composite rubber lining | |
| technology without on-site vulcanizationJiang Feng, | 16 INTELLIGENT AND DIGITAL APPLICATIONS |
| Gong Daitao, Zhao Weidong, Zhang Wei, Jin Hui (4-39) | Application and debugging of camera vision centering system |
| Optimization of plastic shell injection molding process for | in five-drum building machineZhang Yu (3-23) |
| intelligent touch screen | Laser AGV simulation testing and B/S architecture application |
| Optimization design of jet cleaning process for inner wall of | based on Python and UDP protocolsYin Xin (5-19) |
| polymer processing equipment Yu Weiyou, Xin Ruifeng, | Research on the implementation of AGV automatic traffic |
| Zhang Hao, Li Jinfang, Zhang Guohui, Zhang Bing (5-38) | control algorithmZhou Xinyue (6-20) |
| Research and application of tandem rotor + RTO process for | Analysis of the combined application of rubber equipment |
| the treatment of tire mixing exhaust gas | and digital twinSun Zhiyu (6-26) |
| Liu Zhihao, Zhang Xiaoming, Zhao Jiabin, Cao Kai (5-43) | Intelligent manufacturing analysis of tire industry |
| Double I-wheel tire building machine feeding trolley suitable | Shen Aihua (7-17) |
| for fine adjustment of multiple specifications | Research and application of intelligent scheduling system |
| Chen Geng, Huang Shicheng, Liu Jiaheng, Lv Xin (6-30) | based on UWB technologyYang Shuping, Meng Fanguo, |
| Research and development analysis of GN700 internal mixer | Zhang Yuquan, Sun Hongxi, Liu Xiangsheng (8-30) |
| Sun Qingwei, Cui Haosen, Liu Qilin (6-34) | Problems and solutions of digitalization and informatization |
| Research on the optimization of PTFE-based composite | construction in the tire industryYang Chaoyu (9-32) |
| material coating process based on DOE | |
| Du Zhongsi, Li Pan (7-32) | 17 TRANCIATION CELECTER |
| Research on the modification process of IBC container liner | 17 TRANSLATION SELECTED Styrenic thermoplastic elastomers for high-efficiency foams in |
| blow molding machine head core mold | the automotive industryZhang Yu, Compiler (1-77) |
| Liu Junqiang, Liang Hongfan, Wang Na, Niu Huirong (8-41) | Improving the performance of automotive door extrusion |
| Research on milling hot plate processing technology for tire | · · · · · · · · · · · · · · · · · · · |
| shaping and curing pressLiu Qianwei (9-46) | seals: using low friction, high durability water-based coatings to |
| Optimization and research on winding and building system for | reduce friction noise |
| semi-finished components of giant engineering tires | Carbonized soybean hull as a replacement for carbon black in tire sidewallsZhang Yu, Compiler (3-74) |
| Wang Jun (10-35) | |
| Research on the machining process of slender spline shafts for | Current view on rubber development for Mars rover |
| gearboxes of large co-rotating parallel twin-screw | |
| extruders Zhou Weidong, Yuan Airen, Zhang Yingchong, | Natural rubber: a renewable industrial raw material with |
| Li Qingdong (10-41) | negative carbon footprintZhang Yu, Compiler (5-76) |
| Improvement of process method for non-insulated anti-icing | Maximizing mold utilization: The case for semi-permanent |
| leading edge heating element and skinWang Linfeng (11-23) | release agentsZhang Yu, Compiler (6-73) |
| Application of tire zero-point positioning function in tire | Using tensile strength distribution to detect undispersed filler |
| dynamic balance uniformity detection | and other crack precursors in rubber |
| | Zhang Yu, Compiler (7-76) |
| Zhang Yuanjia, Li Haiyan (11-27) | Towards zero waste rubber production |
| Working principle and common fault analysis of the cutting | Zhang Yu, Compiler (8-74) |
| | Investigation of the post-hardening effect in a silica filled NR- |
| system of the steel cord cutting machine's host | compoundZhang Yu, compiler (9-74) |
| He Pingjun, Jiang Lilei, Wang Chen (12-38) | Investigation of alternative pinless screw concepts for rubber |
| Discussion on the control of winding tension in film slitting | extrusionZhang Yu, compiler (10-73) |
| machines Liu Zhimei, Sun Congming, Li Zhongguo (12-44) | Influence of various additives in the thermoplastic on the |
| | adhesion of LSR-thermoplastic composites |
| 14 ENTERPRISE MANAGEMENT | Zhang Yu, compiler (11-72) |
| Risk analysis and management strategies for safety production | Application of Horikx's theory for devulcanized scrap rubbers |

• **5** • 第**51**卷 第**12**期

.....Zhang Yu, compiler (12-78)

in rubber products enterprises...... Chen Lijie, Wang Anqi (3-70)