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CONTRIBUȚII TEORETICE ȘI EXPERIMENTALE PRIVIND CARACTERISTICILE STRUCTURALE ALE FIBRELOR MOHAIR ANGORA DE PROVENIENȚĂ ROMÂNEASCĂ. Considerații generale privind fibrele mohair Angora/ THEORETIC AND EXPERIMENTAL CONTRIBUTIONS REGARDING THE STRUCTURAL CHARACTERISTICS OF THE ANGORA MOHAIR FIBERS FROM GOATS ACCLIMATIZED IN ROMANIA.

General considerations on the Angora mohair fibers*

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ABSTRACT – RÉSUMÉ – INHALTSANGABE

Theoretic and experimental contributions regarding the structural characteristics of the Angora mohair fibers from goats acclimatized in Romania. General considerations on the Angora mohair fibers*

"The return to nature" is a current trend in the field of the textile industry. On the global level, the use of "rare" animal fibers, also known under the name of "noble, precious, special fibers": mohair, cashmere, vicuna, has increased considerably in the recent years. Taking into account the global trends in the field, the acclimatization of a nucleus of Angora goats in Romania, the setting up of a new autochthonous base of valuable raw material and the evaluation of the possibilities of efficient processing of these fibers, represent an alternative for the Romanian zootechnical sector and a challenge for the scientific research and textile industry of this country. This has a direct and positive influence on the increase of their competitiveness, in the challenging economic context due to Romania's adhesion to the European Union.

Key-words: mohair fibers, producers, characteristics, laboratory

Contributions théoriques en ce qui concerne les caractéristiques structurales de fibres mohair d'Angora de provenance roumaine. Première partie. Considérations générales concernant les fibres mohair Angora

"Le retour à la nature" représente une tendance de plus en plus actuelle dans le domaine de l'industrie textile. Sur le plan mondial, l'utilisation des fibres animales "rares", connues aussi sous l'appellation de "fibres nobles, précieuses, spéciales": mohair, cashmere, vigogne, a connue une ampleur importante ces dernières années. Compte tenu des tendances mondiales dans le domaine, l'acclimatization en Roumanie d'un noyau de chèvres d'Angora, la formation d'une nouvelle base autochtone de matière première de grande valeur et l'établissement des possibilités de traitement efficient de ces fibres représentent une alternative pour le secteur zootechnique roumain et un défi pour la recherche scientifique et pour l'industrie textile de Roumanie, avec des conséquences positives directes sur la croissance de leur compétitivité, dans le contexte économique concurrentiel supposé par l'adhésion du pays à l'Union Européenne.

Mots-clés: fibres mohair, producteurs, caractéristiques, laboratoire

Theoretische und experimentelle Beiträge betreff der strukturellen Charakteristiken der Mohair Angora Faser rumänischer Herkunft. Teil 1. Generelle Betrachtungen betreff der Angora Mohair Faser

"Der Wiederkehr zur Natur" stellt eine immer aktuellere Tendenz auf dem Gebiet der Textilindustrie, dar. Eine besondere Bedeutung auf der Weltebene hat die Anwendung der "seltenen" tierischen Faser, bekannt auch unter der Benennung "Edelfaser, Hochwertfaser, Spezialfaser": Mohair, Kaschmir, Vigogne. Wenn wir die Welttendenzen auf dem Gebiet, die Aklimatisierung in Rumänien einer Kerngruppe von Angora-Ziegen, die Bildung einer neuen wertvollen Rohstoff Basis im Inland und die Bestimmung der effizienten Bearbeitungsmöglichkeiten dieser Faser in Betracht ziehen, stellen diese eine Alternative für den rumänischen zootechnischen Sektor und eine Herausforderung für die wissenschaftliche Forschung und die Textilindustrie in Rumänien, dar, mit positiven Implikationen auf deren Kompetitivitätswachstum im ökonomischen Konkurrentialkontext, was den Beitritt unseres Landes an die EU, betrifft.

Schlüsselwörter: Mohairfaser, Produzenten, Charakteristiken, Labors

"Mohairul rămâne una dintre cele mai importante fibre animale speciale, găsindu-și o largă aplicație în domeniul produselor pentru îmbrăcăminte, dar și al textilelor de interior. În ciuda unui volum impresionant de publicații și cercetări, proprietățile sale deosebite: luciul natural, tușeul moale și pufos, rămân încă un secret, accentuând atmosfera de mister și exotic ce îl învâluie".

"The mohair remains one of the most important special animal fibers, with a wide range of applications in the field of clothing products and interior textiles. Despite an outstanding volume of publications and researches, its special properties – the natural luster, the soft and fluffy touch are still a secret – emphasizing the mysterious and exotic atmosphere that surrounds them".

Lawrence Hunter
CSIR Division of Textile Technology
Port Elizabeth, Africa de Sud [1]

Studiile de piață demonstrează că evoluția societății a determinat și determină în continuare o anumită schimbare a concepției consumatorilor; cerințele și exigențele acestora au depășit stadiul unor produse textile de calitate, atingând un nivel superior: produse din fibre naturale cu înaltă valoare adăugată, care oferă

The market researches indicate that the society's evolution has determined, and still does, a certain change of the consumers' perspective. Their requests and exigencies go beyond the level of quality textile products, reaching a superior one: natural fiber products, with a high added value, that bring "services"

* Partea I / P¹ Part.

APRECIEREA CALITĂȚII FIRELOR TIP BUMBAC UTILIZÂND FIȘELE DE CONTROL STATISTIC PENTRU SARCINA DE RUPERE/

EVALUATION OF THE COTTON YARN QUALITY USING STATISTIC CONTROL CARDS FOR THE BREAKING LOAD

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ABSTRACT – RÉSUMÉ – INHALTSANGABE

Evaluation of the cotton yarn quality using statistic control cards for the breaking load

The paper presents the procedure of use of the statistical control cards in spinning mills for the controlling and operating of the yarns process. After establishing the tolerance field and reckoning some statistical parameters- risk sort I and sort II, one determines whether a process develops under normal quality conditions. The application refers to the spinning process of a 100% cotton yarn, with a count of Nm 34/1 on the BD 200 RN rotor spinning machine. In this respect, one has determined experimentally the ultimate stress, the variation coefficient CV at the breaking load and the mean standard drift at the breaking load. The values of the quality parameters obtained through laboratory analyses have been marked in diagrams as points. By interpreting the cards, important decisions may be taken for the development of the methods of operation, determining whether the technological process is adequate.

Key-words: yarns, quality, statistical control, tolerance field, feedback

L'appréciation de la qualité des fils type coton, en utilisant des fiches de contrôle statistique pour l'effort de rupture

Le papier présente le mode d'utilisation des fiches de contrôle statistique dans les filatures, pour le contrôle et le guidage du processus de fabrication des fils. Après avoir établi le champ de tolérance et le calcul de quelques paramètres statistiques- risque du 1er et 2ème genre, on établit si un procès se déroule ou pas dans des conditions normales de qualité. L'exemple pratique fait référence au procès de filage d'un fil 100% coton, ayant la finesse de Nm 34/1, réalisé sur la machine à filer avec rotors BD 200 RN, pour laquelle on a déterminé expérimentalement l'effort de rupture, le facteur de variation pour l'effort de rupture et l'irrégularité moyenne standard à l'effort de rupture. Les valeurs des paramètres de qualité, obtenues après les analyses de laboratoire, ont été marquées par points dans les diagrammes. L'interprétation des fiches peut déterminer la prise de décisions importantes pour le déroulement du processus de fabrication, en établissant si le processus technologique est adéquat.

Mots-clés: fils, qualité, contrôle statistique, champ de tolérance, rétroaction

Abschätzung der Qualität der Garne Typ Baumwolle, durch Verwendung von statistischen Kontrollblätter für die Bruchlast

Die Arbeit stellt die Anwendungsmodalität der statistischen Kontrollblätter in Spinnereien, zum Zweck der Kontrollierung und Steuerung des Garnproduktionsprozesses, dar. Aufgrund der Festlegung des Toleranzbereiches, der Berechnung einiger statistischen Parameter – Risiko Gen I und Gen II, wird bestimmt, ob ein Prozess in normalen Bedingungen abläuft, oder nicht. Das praktische Beispiel bezieht sich auf den Spinnprozess eines Garnes mit der Feinheit von Nm 34/1 aus 100% Baumwolle, produziert auf der Rotorspinnmaschine BD 200 RN, für welches experimentell die Bruchlast bestimmt wurde, sowie der Variationskoeffizient CV und die Mittlere Standardabweichung, bei Bruchlast. Die Werte der Qualitätsparameter, erhalten durch Laboranalysen, wurden in den Diagrammen durch Punkte markiert. Durch die Interpretierung der Kontrollblätter, kann man wichtige Entscheidungen für die Durchführung des Produktionsprozesses treffen, in dem man festlegt, ob das technologische Prozess entspricht

Schlüsselwörter: Garne, Qualität, statistische Kontrolle, Toleranzgebiet, feed back

Fișele de control statistic sunt documente de atestare a calității funcționării utilajelor și permit analize comparative. Sunt utilizate frecvent pentru facilitarea urmăririi calității firelor, a preciziei și a reglării unor procese de fabricație.

Analiza câmpului de toleranță, a variației sarcinii de rupere a firului reflectă modul de desfășurare a procesului de filare, în special calitatea și stabilitatea reglajelor tehnologice.

Analiza variației sarcinii de rupere la firele tip bumbac, în limitele câmpului de toleranță, asigură feedback-ul în luarea deciziilor tehnice privind desfășurarea ulterioară a procesului de fabricație.

CONSIDERAȚII TEORETICE

Un produs de calitate este rezultatul unui proces de fabricație, care se desfășoară normal atât din punct de vedere al centrului de grupare, cât și din punct de vedere al preciziei.

Condițiile efective pentru realizarea firului (operații tehnologice, sistem de filare, parametri de prelucrare-reglaj) determină neregularitatea structurală și pilozitatea

The statistic control cards are documents for certifying the quality of the machines running and allow comparative analysis. They are frequently used for enabling the pursuing of the yarn quality, accuracy and adjustment of certain processes. The analysis of the tolerance field, of the yarn breaking load variation reflects the spinning process evolution, especially the quality and the stability of the technological settings. The analysis of the cotton yarn breaking load variation provides, within the limits of the tolerance field, the feedback for taking the technical decisions regarding the subsequent performance of the process.

THEORETICAL CONSIDERATIONS

A quality product is a result of an operating process, which runs normally both from the grouping center standpoint and from the accuracy one.

The effective conditions to perform the yarn (technological operations, spinning system, processing parameters-adjustment) determine the structural irregularity and the hairiness of the yarns, which reflect in the unevenness of the yarn mechanical properties. The

ASPECTE PRIVIND STRUCTURA PRODUSELOR REALIZATE PRIN ÎMPLETIRE/ ASPECTS REGARDING THE STRUCTURE OF THE PRODUCTS MADE THROUGH BRAIDING

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ABSTRACT – RÉSUMÉ – INHALTSANGABE

Aspects regarding the structure of the products made through braiding

The braided products are obtained by combining two movements in a complex way: the spatial movement of the yarns and the drawing-in movement of the braiding. With a large variety of the production range and of the fields of use, the braiding can be 2D or 3D structures, arranged on a double or triple axis. The authors present a classification of the types of braiding from the point of view of the piecing and of the number of the systems used. The paper defines the specific structure characteristics, i.e. the possibilities of global characterization of the braided structure, its aspect and properties. These refer to: the weave, the number of batters, the number of ribs, the density of the yarns (of the braiding elements), the yarns tilt angle in the braiding and the mass of the braiding. The specific structure elements are presented graphically. The assortments of braided articles being extremely diversified, the specific structural elements of these articles should be very well known by the producers in order to efficiently meet the requirements of use, depending on the technical possibilities of the machines they are performed on.

Key-words: braiding, double axis, triple axis, characteristics, structure

Aspects concernant la structure des produits tressés

Les produits tressés sont obtenus par la combinaison complexe de deux mouvements: le mouvement d'espacement des fils et le mouvement de piquage du tressage. Très variés comme gamme de réalisation et comme domaines d'utilisation, les tressages peuvent être des structures 2D ou 3D, ordonnées en double ou en triple axe. Les auteurs présentent une classification des tressages du point de vue de la manière de liaison des fils et du nombre de systèmes de fils utilisés. Le papier définit les caractéristiques spécifiques de structure, respectivement les possibilités de caractérisation globale du produit tressé en ce qui concerne sa structure, son aspect et ses propriétés, qui font référence: au croisement, au nombre d'étapes, au nombre de nervures, à la densité des fils (des éléments de tressage), à l'inclinaison des fils dans le tressage et à la masse du tressage. Les éléments spécifiques de structure sont représentés graphiquement.

Parce-que les classes d'articles tressés sont très diversifiées, les producteurs de ces articles doivent bien connaître leurs éléments structuraux spécifiques, afin qu'ils puissent satisfaire le mieux les exigences d'utilisation de ces produits, relativement aux possibilités techniques des machines qui les exécutent.

Mots-clés: tressages, double axiale, triple axiale, caractéristiques, structure

Protektionshandschuhe gegen mechanische und elektrische Schocks

Die verflochtenen Produkte werden durch die komplexe Kombination von zwei Bewegungen, erhalten: eine Raumbewegung der Garne und eine Bewegung für das Ziehen des Geflechtes. Sehr verschieden als Produktionspalette und als Anwendungsbereiche, können die Verflechtungen 2D oder 3D Strukturen haben, axial oder tri-axial verlegen. Die Autoren stellen eine Klassifizierung der Verflechtungen aus dem Blickpunkt der Verbindungen der Garne und der gebrauchten Garnsystemanzahl, dar. Es werden die spezifischen Strukturcharakteristiken definiert, beziehungsweise die globale Charakterisierungsmöglichkeit des verflochtenen Produktes betreff seiner Struktur, seines Aspektes und Seiner Eigenschaften, gemäss: Bindung, Treppenzahl, Aderanzahl, Garndichte (der Verflechtungselemente), Neigungswinkel der Verflechtungsgarne und Verflechtungsmasse. Es werden grafisch die spezifischen Strukturelemente dargestellt. Weil die Palette von Verflechtungsartikel sehr verzweigt ist, müssen die spezifischen Strukturelemente dieser für die Produzenten gut bekannt sein, damit man möglichst gut den Anwendungsanforderungen, abhängig von den technischen Möglichkeiten der Maschinen die sie produzieren, konform wird.

Schlüsselwörter: Verflechtungen, biaxial, tri-axial Charakteristiken, Struktur

Produsele împletite sunt structuri textile în care firele sunt dispuse unele față de altele pe direcție oblică. Pentru realizarea mecanică a împletituri, în principiu, sunt necesare două mișcări, respectiv mișcarea spațială a firelor și mișcarea de tragere a împletituri. Mișcarea spațială determină trecerea alternativă a firelor, unele pe deasupra celorlalte, în vederea constituirii elementelor de împletitură. Mișcarea de tragere, efectuată pe direcția axei produsului, determină înaintarea acestuia și poziționarea firelor în împletitură pe direcție diagonală față de margini [3].

Produsele împletite prezintă o mare diversitate și își găsesc utilizarea în toate domeniile de activitate, atât ca produse de uz curent, cât și ca produse de uz tehnic. În principiu, produsele împletite pot fi: plane, cu structuri 2D sau cu dispunere spațială a firelor, adică cu structuri 3D. Firele care se împletesc pot fi dispuse biaxial sau triaxial.

Din punct de vedere al formei, categoriile de împletituri reprezentative sunt:

- împletituri 2D biaxiale;

The braided products are textile structures, where the yarns are arranged in an oblique position one against the others. For the mechanical performance of the braiding two moves are necessary, in principle, namely the spatial motion of the yarns and the braiding take-up motion. The spatial motion determines the alternative passage of the yarns, ones on the top of the others, with a view to setting up of the braiding elements. The take-up motion, performed on the direction of the axis of the product, determines its advancement and the positioning of the yarns in the braiding on a diagonal direction against the margins.

The braided products are very diverse and find application in all the fields of activity, both as commonly used products and as products of technical use.

In the main, braided products can be plane, 2D structures or with the spatial arrangement of the yarn, meaning 3D structures. The braided yarns can be arranged on a double or triple axis.

From the point of view of the form, the representative categories of braiding are the following:

- 2D braiding with a double axis;

APARAT PENTRU DETERMINAREA DEFECTELOR ÎN FIRELE FILAMENTARE.

Partea a II-a. Considerații privind principiul constructiv și funcționarea aparatului/

FILAMENT YARNS DEFECT DETECTOR

Part II. Remarks on the construction principle and on the running order of the instrument*

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ABSTRACT – RÉSUMÉ – INHALTSANGABE

Filament yarns defect detector.

Part II. Remarks on the construction principle and on the running order of the instrument

The instrument detects, registers and reads the defects in filament yarns and it is meant for the investigation laboratories of the users (the producers of knitted articles) and of the producers of filament yarns. By connecting the instrument to a computer, to which was added an analogue interface specific to the technological programs, there are more possibilities of taking over the data with a view to drawing up a vast database. A specialized software was created for the automatic taking over of the data and for the processing of the data obtained after analysis respectively, for the construction of a database regarding the analyzed filament yarns for the drawing up of standard analysis bulletins on the basis of the trial cards and their printing, as well as for providing conformity with the requirements of the laboratory analyses.

Key words: filament yarns, optical- electronic principle, defect transducers, software

Appareil enregistreur pour la localisation des défauts dans les fils continus.

II-ème partie. Considérations sur le principe de construction et le fonctionnement de l'appareil

L'appareil signale, enregistre et traduit les défauts dans les fils continus. Il est conçu tant pour les laboratoires d'investigation des utilisateurs (les producteurs d'articles tricotés) que pour celles des producteurs de fils continus. Par la mise en contact de l'appareil avec un ordinateur, auquel on a ajouté une interface analogique spécifique aux programmes technologiques, il y a plus de possibilités de saisie des données en vue de la mise au point d'une ample base de données. Un logiciel spécialisé a été élaboré pour la saisie automatique des données et respectivement le traitement automatique des données prélevées de l'analyse pour élaborer une base de données sur les fils continus analysés, pour l'élaboration des bulletins d'analyse standard conformément à la fiche de tests et leur impression à l'imprimante, aussi que pour assurer la conformité avec les exigences des analyses de laboratoires.

Mots- clés: fils continus, principe d'optique électronique, traducteurs de défauts, logiciel

Gerät für die Bestimmung der Fehler in Filamentgarne.

II. Teil. Betrachtungen betreff dem konstruktiven Prinzip und der Arbeitsweise des Gerätes

Das Gerät empfindet, registriert und interpretiert die Fehler im Filamentgarn und ist bestimmt sowohl für die Investigationslaboratorien der Anwender (der Produzenten von Gewirken), als auch der Produzenten von Filamentgarne. Durch den Anschluss des Apparates an einem Rechner, bei dem eine analoge Schnittstelle beigesetzt wurde, spezifisch der technologischen Programme, steigen die Möglichkeiten der Bearbeitung der Daten im Sinne der Realisierung einer umfangreichen Datenbasis. Es wurde ein spezialisiertes Software für die automatische Bearbeitung der Daten, und entsprechend für die Bearbeitung der Daten, erhalten von der Analyse der Konstruktion der Standard-Analyseberichte, aufgrund der Determinierungsdateien und deren Druck auf einem Printer, sowie für die Sicherung der Konformität mit den Anforderungen der Laborator-Analysen, ausarbeitet.

Schlüsselwörter: Filamentgarne, optoelektronisches Prinzip, Fehlerumsetzer, Software

Obiectivul strategic al dezvoltării durabile a industriei textile din țara noastră îl reprezintă revitalizarea acesteia, în vederea creșterii competitivității produselor în condițiile economiei de piață, cu costuri materiale și sociale minime și cu eficiență maximă. Pe fondul accentuării concurenței internaționale, în ultimii doi ani competitivitatea produselor textile românești a crescut, România situându-se pe locuri relativ fruntașe în ierarhia țărilor concurente de pe piața Uniunii Europene.

Controlul defectelor în firele filamentare este impus de normativele de calitate și se efectuează în faza de recepție a loturilor, dată fiind reflectarea defectelor din fir atât în productivitatea muncii – pe faze de prelucrare, cât și în calitatea produselor finite.

Aparatul pentru determinarea defectelor din firele filamentare sesizează, înregistrează și interpretează

The strategic objective of the durable development of the textile industry in our country is represented by the revitalization of this industry, aiming at increasing the competitiveness of the products with minimum material and social costs and with a maximum of efficiency within the market economy. Due to the increased competition on international level, the competitiveness of the Romanian textile products has developed these last two years, Romania placing itself among the first competitive countries on the European Union's market.

The control of the defects in filament yarns is compulsory according to the quality standards and it is performed during the reception phase of the batches, having in mind that defects in the yarn influence the

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