Title

A Aaaa1, B Bbbb2 and C Cccc1,3,\*

1 Aaaa.

2 Bbbb.

3 Cccc.

\*Corresponding author:

**Abstract.** Times font 10. ??????????? ?????????????????? ?????????????????? ??????? ??? ????? ?????? ????????????????????????? ??????????? ????????????? ??????????????? ?????? ????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????.

1. Introduction

Times font 11 [1-2]. ????????? ????????????? ???????????????? ??????????????????????? ?????????? ???????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????.

Recently, [3]. as more user-friendly. ???????? ????? ???????? ??????? ????? ?????? ??????? ?????? ???????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????.

1. Experimental

Times font 11. The formulas of adhesive WNL and adhesive DPNL are presented in the table 1 (PR means phenolic resin, KL means 20%wt potassium laurate and KOH means 10%wt potassium hydroxide).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1.** Formulas of adhesive WNL and adhesive DPNL in phr (parts per hundred of rubber). | | | | | | | | | | | | | | | | | | | | | | |
| **Formula** | | **C1** | | **B1** | | **B2** | | **B3** | | **B4** | | **B5** | | **C2** | | **B6** | | **B7** | | **B8** | **B9** | **B10** |
| 1 | | - | | 0.6 | | 1.8 | | 3 | | 6 | | 9 | | - | | 0.6 | | 1.8 | | 3 | 6 | 9 |
| 2 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | 3 | 3 |
| 3 | | - | | 0.6 | | 1.8 | | 3 | | 6 | | 9 | | - | | 0.6 | | 1.8 | | 3 | 6 | 9 |
| 4 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | 3 | 3 |
| 5 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | | 3 | 3 | 3 |
|  |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | | | |

FTIR (Nicolet Magna 850) in Attenuated Total Reflectance (ATR) mode with diamond crystal was used to determine the chemical structure of the rubbers. Nitrogen content of latex samples (WNL and DPNL) was determined using the Kjeldahl method [9]. Total solid content (TSC) of natural latex adhesive were measured following ISO 124. Viscosity of latex was determined by Brookfield Viscometer (LDVD-III, Brookfield, USA) type rational viscometer. The surface energies of the different rubbers and fabrics were evaluated from contact angle measurements using different liquid drops of known properties [2]. Average separation force of two nylon fabrics adhered by adhesive natural latex were recorded on a tensile testing machine (Instron) type peeling test 180º following ASTM 638. Scanning electron microscope or SEM (XL30 Philips, Netherlands) was used to investigate the topology of the fractured surface between the two fabrics adhered by natural latex adhesive. Then, the fractured surfaces were sputter-coated directly with Au/Pd to observe the surface of fabrics. JEOL JSM-5310 at 10kV acceleration voltage.

1. Results and discussion

First of all, times font 11. ???? ???? ???? ????? ??????? ????????? ?????????? ????????????? ??? ??????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????.

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**Figure 1**. This is the logo for ICMARI 2019.

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1. Conclusions

In this research, we ????????????????????????????????????????????????????????????????????????? ????? ????? ???? ???????? ???????? ???????? ???????? ???? ????? ????? ????? ????? ???? ???? ????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????.

**Acknowledgement**

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