REPUBLIC OF TURKEY

YILDIZ TECHNICAL UNIVERSITY

FACULTY OF CHEMISTRY METALLURGY

METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT

Number: B.30.2.YIL.0.50.00.04/ 437 Date:03/08/2009

Subject:

ZENGER TECHNICAL EQUIPMENT INDUSTRY TRADE LIMITED COMPANY

You're writing sample with your application dated 30/07/2009 of the experiments were made, the report results are given in the appendix.

I kindly request your information.

Best Regards

Professor Doctor Ahmet EKERİM

CHAPTER PRESIDENT

Additional: 2 unit report

This report was prepared as a single copy.

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Technical Report edited by the revolving fund Framework Directive For ZENGER TECHNICAL EQUIPMENT Industry Trade Limited Company

Claws and Locked Block and Static Electricity Conductive Flooring Aromatic White Paper Report

A-Detection of the material made of Features

1. Industry and Trade Limited Company Zenger Technical Equipment belonging to the December 5, 2007 - December 31, 2010, between the validity of the Occupational Health and Safety Management System OHSAS 19,001: 1999 standard compliance certificate has.

2. Industry and Trade Limited Company Zenger Technical Equipment belonging to the December 5, 2007 - December 31, 2010, between the validity of the Environmental Management System ISO 14001: 2004 standard certificate of compliance is.

3. Industry and Trade Limited Company Zenger Technical Equipment belonging to the December 5, 2007 - December 31, 2010, between the validity of the Quality Management System ISO 90,001: 2000 standard compliance certificate has.

4. By the Turkish Patent Institute TR 2007 00562 B number from the date of 01.12.2007 for a period of 7 years has a patent without examination.

5. Inter-Nova International Quality Center, 3 November 2008 at 08INs004 used in open spaces numbered blocks, acrylic, SBR and EPDM rubber molding and rolls of flooring material compliance certificate has branded Zenger.

6. Yildiz Technical University, Faculty of Mechanical critical fall height and on 29.9.2007 by the HIC experiments were carried out.

7. Yildiz Technical University by the Faculty of Electrical and Electronic Industry and Trade Zenger Technical Equipment on 04/12/2007 Limited samples sent by the resistor values are calculated with the environment. Medium, was found to be the resistance value of 395 k Ω

8. Yildiz Technical University, Faculty of Electrical and Electronics by on 12/05/2008 TS 2734 and TS EN 1081 standards Zenger Technical Equipment Industry and Trade Limited Company, sent by two different colors of the sample average resistance values and flow-resistance values were calculated, both the anti-static material that has been identified.

9 Yildiz Technical University, Faculty of Electrical and Electronics by Zenger Technical Equipment Industry and Trade Limited Company on 15/04/ sent by the sample average of the values of resistance and puncture resistance experiments were performed, according to the experimental results of the antistatic material and puncture resistance up to 789 volts / cm was calculated to be.

10. Istanbul Technical University in March 2006 by Faculty of Mechanical bowl sound transmission tests carried out to determine the frequency of change depending on the volume and sound transmission loss, absorption coefficient was measured difference.

11. By TUBITAK National Metrology Institute, dated 10/10/2005 of Zenger Technical Equipment Industry and Trade Limited Company static test was carried out to.

13.08.2009

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12. Yildiz Technical University Faculty of Arts and Sciences Department of Chemistry on 04/04/2003 by DIN 4102-1 / 1998-05 According to the standard as a result of the analysis of rubber samples B1 enter the Acoustical Materials have been identified.

13. Industry and Trade Limited Company belonging to Zenger Technical Equipment Republic of Turkey by the Turkish Patent Institute design registration certificate number 2007 00362 and 2007 00963 has.

14. Has a number of validity until 25.10.2010 TSE 34.14.01/8514 document are by.

15. 2007 / 08977 - 2007 / 08978-2007 / 08979th numbered by the Republic of Turkey The Turkish Patent Institute of Zenger Technical Equipment Industry and Trade Limited Company belonging to the patent application is approved.

16. Belonging to the company 2008 / 01868 reference number 2008 01868, dated 01.07.2008 approved design registration certificate number is registered.

B- Hardness Measurement:

Hardness Measurement of Zenger Technical Equipment Industry and Trade Limited Company sent by two different specimen have been applied for and was repeated 10 times for each sample. Experimental results obtained and the average hardness values in the tables are located. And galvanized surfaces with wear-resistant composite sample 1 and sample 2 blocks of stairs is anti-static rubber flooring material.

Specimen 1 Hardness Change Table

Experiments No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Shore A Value	45	43	42	47	50	49	53	43	40	44

Average hardness value of specimen 1: 45,6 Shore A.

Specimen 2 Hardness Change Table

Experiments No	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Shore A Value	50	50	52	48	48	55	50	53	48	53

Average hardness value of specimen 2: 50,7 Shore A.

C- Assessment and Findings:

Waste recycling materials through the production method of Zenger Technical Equipment Industry and Trade Limited Company, conducted by, patent protection and privileges, as flat plate-shaped floor, and as a realized production of materials sufficient abrasion resistance and hardness with the relevant standards determined

1- DIN 4102-1 / 1998-05 according to the standard as a result of the analysis of rubber samples B1 into the acoustic material,
2- Anti-static properties as appropriate to the conditions of the experiment,
3- Sound and vibration is absorbed,
4- Is resistant antistatic drill,

13.08.2009

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5- Critical fall height is 2.14 m,

Findings are included in the reports. In addition, the results of measuring the hardness of the specimen average for the first Shore A hardness value of 45.6 while this value for the second sample is determined as 50.7 Shore A.

D- Results

Patent and design registration Zenger Technical Equipment Industry and Trade Limited Company belonging to the different shapes and designs (70x100x4 cm), (120x300x4 cm) size blocks lock antistatic rubber floor coverings in terms of hardness 45 Shore A and 50 Shore A values were measured. The aforesaid findings and the resulting hardness values in line; rubber borders, block rubber water trough, galvanized steel composite and non-slip surface and wear-resistant rubber stair steps, heavy pedestrian traffic, especially with the top and the pedestrian underpass, and all the traffic areas, sports fields and play areas use of appropriate equipment.

Those experiments do

Research Assistant Nilüfer Evcimen Technicians Mehmet Çalışkan

Physician Assistant Professors Ergün KELEŞOĞLU

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REPUBLIC OF TURKEY

YILDIZ TECHNICAL UNIVERSITY

FACULTY OF CHEMISTRY METALLURGY

METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT

Number: B.30.2.YIL.0.50.00.04/ 672 Date:19/10/2009

ZENGER TECHNICAL EQUIPMENT INDUSTRY TRADE LIMITED COMPANY

You're writing sample with your application dated 30/09/2009 of the experiments were made, the report results are given in the appendix.

I kindly request your information.

Best Regards

Professor Doctor Ahmet EKERİM

CHAPTER PRESIDENT

Additional: 1 unit report

This report was prepared as a single copy.

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YILDIZ TECHNICAL UNIVERSITY

FACULTY OF CHEMISTRY METALLURGY

METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT

QUALITY CONTROL AND APPLIED RESEARCH UNIT

Number: B.30.2.YIL.0.50.00.04/ 672 Date:19/10/2009

ZENGER TECHNICAL EQUIPMENT INDUSTRY TRADE LIMITED COMPANY

You have entrusted us with your writing, dated 30.09.2009 portable unit can be mounted to steel rope light, bumping and sound barrier, experiments were made the desired sample, the results are shown below.

I kindly request your information.

Best Regards

Quality Control and Applied Research Unit

Professor Doctor Ahmet TOPUZ

1.Bending Test: Blue and gray-colored specimens were made of the bending test, the results are given in the following table 1.

Table-1

Specimen Name	**h mm**	**b mm**	**l mm**	**F max kp (N)**	**Of Kp/ m² (Mpa)**
Gray	14,61	49,63	150	2550 (25015,5)	54,16 (531,3)
Blue	15,03	34,53	200	1400 (13734,0)	53,84 (528,2)

2.Bumping Test: Blue and gray-colored specimens were made of the bending test, the results are given in Table 2 below.

Table-2

Specimen Name	**a mm**	**b mm**	**W (J)**	**a_0u (kJ/ m²)**
Gray / 1	9,05	14,62	72,6	548,6
Gray / 2	9,75	14,59	66,7	468,9
Blue / 1	8,75	15,20	76,5	575,3
Blue / 2	9,51	15,70	76,5	512,5

3- Density Test: Intensity of blue and gray color samples in the digital scale measured using completeness test was 0.01 and the average density values are given in Table 3.

Table -3

Specimen Name	**Average Density gr/cm³**
Gray	1,81
Blue	1,83

Experiments by

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FACULTY OF CHEMISTRY METALLURGY

METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT

Number: B.30.2.YIL.0.50.00.04/ 743 Date:26/11/2009

ISTON

Writing samples that you consult with your dated 02/11/2009 experiments were made, the report results are given in the appendix.

I kindly request your information.

Best Regards

Professor Doctor Ahmet EKERİM

CHAPTER PRESIDENT

Additional: 1 unit report

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FACULTY OF CHEMISTRY METALLURGY

METALLURGICAL AND MATERIALS ENGINEERING DEPARTMENT

QUALITY CONTROL AND APPLIED RESEARCH UNIT

Number: B.30.2.YIL.0.50.00.04/ 743 Date:26/11/2009

ISTON

You have entrusted us with your unit, dated 02.11.2009 written in green and red rubber flooring material samples were made of the desired experiments, conditions and results are given below.

I kindly request your information

Best Regards

Quality Control and Applied Research Unit

Professor Doctor Ahmet TOPUZ

1. **Tensile Test:** Green and red colored drawing of ground test equipment according to BS EN ISO 527-4 standard were made, the results are given in Table 1 below.

Table 1

Experiments Specimen No	Dimensions (mm) a	b	Gauge Lenght L_0	Rm TensileStrenght Kp/cm² (N/cm²)	A_5 Elongation (%)
Red	9,12	14,60	50	12,76 (125,2)	94
	9,16	12,80	50	11,94 (117,1)	80
	9,18	11,48	50	13,76 (135,0)	90
Green	9,18	12,32	50	3,53 (34,6)	56
	9,23	12,81	50	2,96 (29,0)	50
	9,24	12,74	50	4,92 (48,2)	60

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2. Water Absorption Test: Green and red color of ground materials by water absorption test TS EN ISO to 62 dry weight (m1) measurements of 50 ° C for 24 hours during specimen weighing wait been determined. Wet weight (m2) measurements of the samples in distilled water during 24-hour wait after the proceeds have been carried out, the results are given in Table 2 below.

Table 2

Experiments Specimen No	Amount of Water Absorption (%)
Red	1,88
	2,11
	3,60
Green	16,92
	16,15
	16,40

3- **Abrasion Test:** A group of mechanical abrasion wear test TS 659 was based. Each experiment was performed on 3 specimen. Abrasive powder is used as Corundum. Disc speed 30 rpm, the installation values was chosen as 30 kilograms. Peripheral speed 0.6 m / sec after 80 cycles of abrasion loss of 1 / 100 was determined using precision measuring time. Experimental results on average, are given in Table 3 below.

Table 3

Experiments Specimen No	Wear Amount Δl değerleri mm (μm)			
	Specimen 1	Specimen 2	Specimen 3	Average
Red	0,020 (00)	0,015 (15)	0,020 (20)	0,018 (18)
Green	0,030 (30)	0,035 (35)	0,030 (30)	0,032 (32)

4-Density Test: Green and red color intensity of the ground material is measured by the method of experiment Pycnometer an average density values are given in the following Table4

Table 4

Experiments Specimen No	Average Density (gr/cm^3)
Red	0,97
Green	0,83

Experiments by

Research Assistant Zekeriya CÖMERT Technicians Şaban CEYLAN

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