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TEST REPORT No. 346410

Place and date of issue: Bellaria-Igea Marina - Italy, 07/11/2017

Customer: NORD RESINE S.p.A. - Via Fornace Vecchia, 79 - 31058 SUSEGANA (TV) - Italy

Date test requested: 15/09/2017

Order number and date: 74290, 15/09/2017

Date sample received: 13/09/2017

Test date: from 13/09/2017 to 06/11/2017

Purpose of test: performance analysis of paint products and systems for rooms containing food-stuffs

Test site: Istituto Giordano S.p.A. - Blocco 4 - Via San Mauro, 8 - 47814 Bellaria-Igea Marina (RN) - Italy

Sample origin: sampled and supplied by the Customer

Identification of sample received: No. 2017/2049

Sample name*

The test sample is called "NORPHEN 200 HCR RESISTENTE AL VINO" *("NORPHEN 200 HCR WINE-RESISTANT VERSION")*.

Description of sample*

The test sample is a two-component epoxy coating designed for use in rooms containing foodstuffs.

(*) according to that stated by the Customer.

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Normative References

The test is carried out in accordance with the requirements of the following documents:

- standard UNI 11021:2002 dated 01/12/2002 "Pitture e vernici - Prodotti e sistemi per la verniciatura di ambienti con presenza di alimenti - Requisiti e metodi di prova" *("Paints and varnishes - Paint products and systems for rooms containing foodstuffs - Test requirements and methods")*;
- HACCP - Legislative Decree No. 193 dated 06/11/2007 "Attuazione della direttiva 2004/41/CE relativa ai controlli in materia di sicurezza alimentare e applicazione dei regolamenti comunitari nel medesimo settore" *("Implementation of Directive 2004/41/EC on food safety controls and application of community regulations in this sector")*;
- standard UNI 10792:1999 dated 31/12/1999 "Pitture e vernici - Pitture in emulsione per interno bianche o leggermente colorate - Determinazione della presa di sporco" *("Paints and varnishes - White or lightly-coloured interior emulsion paints - Determination of dirt pick-up resistance")*;
  standard UNI 10560:1996 dated 31/07/1996 "Prodotti vernicianti Pitture murali in emulsione per interno. Resistenza al lavaggio. Metodo della spazzola" *("Paints and varnishes - Emulsion paints for interior walls - Wet-scrub resistance - Brush method")*;
- standard UNI EN ISO 4628-2:2016 dated 07/04/2016 "Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering";
- standard UNI EN ISO 4628-4:2016 dated 07/04/2016 "Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 4: Assessment of degree of cracking";
- standard UNI EN ISO 4628-5:2016 dated 07/04/2016 "Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 5: Assessment of degree of flaking".

Test method

The sample underwent:

- determination of dirt pick-up resistance in accordance with standard UNI 10792:1999;
- odour release in accordance with Annex A "Method for determination of odour release of paints and varnishes" of standard UNI 11021:2002;
- determination of wet-scrub resistance in accordance with standard UNI 10560:1996;

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- determination of cleanability in accordance with standard UNI 11021:2002;
- determination of the mould resistance of paints and varnishes in accordance with Annex C “Method to determine the mould resistance of paints and varnishes” of standard UNI 11021:2002 with fungus strains *Aspergillus niger* and *Penicillium spp*;
- resistance to certain cleaning agents with type “A”, “B”, “C” detergent in accordance with clause 8.4 “Resistance to certain cleaning agents ” of standard UNI 11021:2002;
- resistance to particular disinfecting agents with type “D” disinfectant in accordance with clause 8.5 “Resistance to disinfecting agents” of standard UNI 11021:2002;
- resistance to 10 thermal shock (freeze/thaw) cycles, 2 h at a temperature of -20 °C and 2 h in water at a temperature of 20 °C, in accordance with standard UNI 11021:2002.

Test results

Test	Result	Limits
dirt pick-up resistance	ΔL < 0,5	ΔL ≤ 3,0
odour release	0,0	≤ 1
wet-scrub resistance	> 5000	≥ 5000
cleanability	ΔE < 0,5	ΔE ≤ 3,0
mould resistance strain *Aspergillus niger*	on growth medium = 0 (no development)	≤ 1
	in environment with high level of humidity = 0 (no development)	
Mould resistance strain *Penicillium spp*	on growth medium = 0 (no development)	≤ 1
	in environment with high level of humidity = 0 (no development)	
resistance to detergent “A” active chlorine	no change after immersion for 24 h	no change
	blistering = 0	blistering = 0
	cracking = 0	cracking = 0
	flaking = 0	flaking = 0

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Test	Result	Limits
resistance to detergent “B” alkaline degreaser	no change after immersion for 24 h	no change
	blistering = 0	blistering = 0
	cracking = 0	cracking = 0
	flaking = 0	flaking = 0
resistance to detergent “C” acid descaling agent	no change after immersion for 24 h	no change
	blistering = 0	blistering = 0
	cracking = 0	cracking = 0
	flaking = 0	flaking = 0
resistance to disinfectant “D”	no change after immersion for 24 h	no change
	blistering = 0	blistering = 0
	cracking = 0	cracking = 0
	flaking = 0	flaking = 0
thermal shock resistance	no change after 10 cycles	no change
	blistering = 0	blistering = 0
	cracking = 0	cracking = 0
	flaking = 0	flaking = 0

Test Technician:
Dott. Oscar Filippini

Head of Chemical Laboratory:
Dott. Oscar Filippini

Chief Executive Officer
(Dott. Arch. Sara Lorenza Giordano)

Firmato digitalmente da SARA LORENZA GIORDANO