



Laboratory Testing Report

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|-----------------------------------|--|
| <i>Company</i> | Noroo Paint And Coatings |
| <i>Contact Name</i> | Sung Woo Jung swjung@noroo.com Yun-jae So syj@noroo.com |
| <i>Report Date</i> | March 26, 2019 |
| <i>Category</i> | Detailed Performance |
| <i>Category Type</i> | Initial |
| <i>IPS#</i> | 3025-I-2019-10-17001 |
| <i>MPI Category #</i> | 10 |
| <i>Product Label</i> | Noroo Paint |
| <i>Product Name</i> | Cleansol Flat |
| <i>Product Code</i> | NA |
| <i>Batch Number</i> | 119 JAN 1111B |
| <i>Testing Results</i> | PASS |
| <i>Approval Expiry Date</i> | Approximately 2 years |
| <i>Failure Notice</i> | |
| <i>Comments</i> | |
| <i>MPI Technical Director</i> | Bob Welch |
| <i>MPI Senior Admin Assistant</i> | Terrance Mayes |
| <i>MPI Invoice #</i> | D19-0185 |

A pass report is not the final approval.

**Final approval occurs when the product is published in the MPI Approved Products List.
The MPI Approved Products List is updated by the 5th of each month.**

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Toll-Free Tel: 1-888-674-8937, Toll Free Fax: 888-211-8708
March 26, 2019*

■ GENERAL INFORMATION

This paint is based on 100% acrylic polymer, pigment and stabilizers. It is a high class Flat emulsion paint with such advantages as excellent scrubbable resistance, alkali resistance, water resistance, cleansability(washable), durability, mildew resistance for exterior use. It is intended for use on new or previously painted the most suitable for walls and ceilings composed of concrete, mortar, plaster, P.C. and insulation materials. The gloss/sheen of this material is similar to a conventional eggshell.

■ SUITABLE USE

Various kinds of ceilings and walls (concrete, P.C., mortar, plaster and interior wall and ceiling surface including gypsum wallboard,plaster,primed wood surfaces)

3. Surface to be painted shall be prepared an instrument-measured moisture content not exceeding 8% and less than 9 pH.

■ SPECIFICATION

A. Type: Acrylic polymer / exterior / Institutional low dodr

| | | | |
|----------------------|------|-------|-------|
| B. Drying Times: | 5 °C | 20 °C | 30 °C |
| Set to Touch | 1H | 1/2H | 1/3H |
| Dry Hard | 2H | 1H | 2/3H |
| For Over coat (Min.) | 6H | 3H | 2H |

* H: Hour

C. Consistency: Ready for use

D. Thinner: Tap-Water (Max. 10% at 1st coating,
 Max. 5% at 2nd coating)

E. Specific Gravity: Appr. 1.36

F. Theoretical Coverage: 5~7 m²/L/2 coats/60μ
 (Dry film thickness)

G. Shade: White and tints

H. Texture: Flat (Gloss 60 degree : Under 5)

■ DIRECTION FOR USE

A. Surface Preparation

1. Eliminate oil, water, grit, dirt, marked paint and any foreign matters.

B. Preparation of Paint

1. Stir to be mixed uniformly.
 2. Avoid excessive thinning.

C. Application

1. Can be applied by brush, spray.

■ OTHER CAUTIONS -

- Will not form a homogeneous film below 5 °C (41 °F) or at humidities greater than 95% R.H.
- Don't store or ship the paint at temperatures less than 5 °C (41 °F) nor above 35 °C (95 °F)

* The information and date given herein are based upon tests and experiences considered reliable, and are believed to be accurate. The coverage depend on the shape of surface to be coated, surface roughness, weathe conditions during application and application method, so that you are urged fully to re-view them prior to your practical application.

* The date of issue: 2008.12

MATERIAL SAFETY DATA SHEET

SECTION I GENERAL INFORMATION

A. PRODUCT NAME: Cleansol-Flat (MPI 10)

Latex Based / exterior 100% Acrylic

B. MANUFACTURERS NAME: NOROO Paint & Coatings Co., Ltd.

615 PARK DAL DONG, AN YANG CITY

KYUNG KI DO, KOREA

TEL: (031)467-6150

SECTION II COMPOSITION

| CHEMICAL NAME | CAS NO | CONTENTS |
|------------------|------------|----------|
| ACRYLIC POLYMER | NOT HAZARD | 20~50 |
| WATER | 7732-18-5 | 30~50 |
| TITANIUM DIOXIDE | 13463-67-7 | 20~30 |
| CALCINED CLAY | 66402-68-4 | 0~10 |
| MICA | 12001-26-2 | 10~20 |
| S1 | - | 0~3 |

SECTION III PHYSICAL PROPERTIES

| | |
|-------------------|-------------------|
| BOILING RANGE | 200~225 deg.F |
| EVAPORATION RATE | SLOWER THAN ETHER |
| VAPOR DENSITY | HEAVIER THAN AIR |
| % VOLATILE VOLUME | 50 MAX |
| SPECIFIC GRAVITY | 1.2~1.4 |
| VISCOSITY | 90~110KU |

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

FLASH POINT: NOT ESTABLISHED

LEL: N/A

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG

UNUSUAL FIRE AND EXPLOSION HAZARDS:

EXTINGUISHING MEDIA ABOVE IS RECOMMENDED ON DRIED FILMS OF THIS MATERIAL THAT IS BURNING. THIS MATERIAL IS NON-COMBUSTIBLE BUT DRIED FILMS ARE CAPABLE OF BURNING AND SUPPORTING COMBUSTION WHEN IN CONTACT WITH OPEN FLAMES.

SPECIAL FIREFIGHTING PROCEDURES:

OBSERVE RECOMMENDED PROCEDURES IN HANDLING FIRE AREAS. WEAR APPROPRIATE FIRE FIGHTING EQUIPMENT INCLUDING A SELF CONTAINED BREATHING APPARATUS.

SECTION V – HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE:

VAPOR ODORS MAY CAUSE IRRITATION IN THE UPPER AND LOWER RESPIRATORY TRACTS, NAUSEA, HEADACHES, AND DIZZINESS. EYE CONTACT CAN CAUSE IRRITATION, REDNESS, AND VOMITING, DIARRHEA, AND GASTROINTESTINAL IRRITATION.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE:

OVEREXPOSURE TO VAPORS CAN PRODUCE HEADACHES, DIZZINESS, AND NAUSEA.

PRIMARY ROUTE(S) OF ENTRY: INHALATION, INGESTION

EMERGENCY AND FIRST AID PROCEDURES:

IF AFFECTED BY VAPORS, MOVE PERSON TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION TO PERSON WHO LOSES CONSCIOUSNESS AND CALL A DOCTOR IMMEDIATELY. TREAT EYE AND SKIN CONTACT BY THOROUGHLY WASHING WITH CLEAN WATER. IF IRRITATION PERSISTS SEE A DOCTOR IMMEDIATELY. IF MATERIAL IS INGESTED AND THE PERSON IS CONSCIOUS GIVE TWO GLASSES OF WATER TO DRINK AND CALL A DOCTOR IMMEDIATELY.

SECTION VI – REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS POLYMERIZATION INFORMATION IS NOT ESTABLISHED.

HAZARDOUS DECOMPOSITION PRODUCTS:

BURNING CAN PRODUCE CARBON DIOXIDE AND OR CARBON MONOXIDE.

CONDITIONS TO AVOID:

AVOID TEMPERATURES BELOW 40 degrees Fahrenheit. AVOID FREEZING CONDITIONS.

INCOMPATIBILITY (MATERIALS TO AVOID):

AVOID MATERIALS THAT REACT WITH WATER, ALSO STRONG ACIDS AND ALKALAI S.

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

DIKE AND ABSORB SPILLED MATERIAL WITH INERT ABSORBENT MATERIAL SUCH AS SAND, EARTH, AND SAW DUST. USE RAGS TO CLEAN UP SMALL AMOUNTS OF SPILLED MATERIAL.

WASTE DISPOSAL METHOD:

COLLECT MATERIAL CONTAMINATED ABSORBENT AND RAGS INTO A DISPOSABLE CONTAINER AND DISPOSE OF IN ACCORDANCE TO LOCAL, STATE, AND FEDERAL REGULATIONS. CONSULT WITH YOUR LOCAL HAZARDOUS WASTE REGULATORS REGARDING LANDFILL DUMPING.

SECTION VIII – SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION:

WEAR APPROVED ORGANIC VAPOR RESPIRATOR UNLESS VENTILATION EQUIPMENT IS ADEQUATE TO KEEP AIRBORNE CONCENTRATIONS BELOW THE EXPOSURE STANDARDS.

VENTILATION:

GENERAL MECHANICAL VENTILATION MAY BE SUFFICIENT TO KEEP PRODUCT VAPOR

CONCENTRATIONS BELOW SPECIFIED TLV RANGES. IF INADEQUATE, USE LOCAL EXHAUST.

PROTECTIVE GLOVES:

USE IMPERMEABLE SOLVENT RESISTANT GLOVES TO PROTECT FROM SKIN CONTACT.

EYE PROTECTION:

USE SAFETY GOGGLES, CHEMICAL SAFETY GLASSES AND OR FACE SHIELDS TO PROTECT EYES

OTHER PROTECTIVE EQUIPMENT:

IMPERMEABLE APRONS AND PROTECTIVE CLOTHING ARE ADVISED WHEN WORKING WITH THIS PRODUCT. THE USE OF HEAD CAPS ARE RECOMMENDED WHENEVER POSSIBLE.

HYGIENIC PRACTICES:

EYE WASHES AND SAFETY SHOWERS IN THE WORKPLACE ARE RECOMMENDED.

SECTION IX – SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

KEEP CONTAINERS CLOSED WHEN NOT IN USE. DO NOT STORE OR HANDLE NEAR HEAT, FLAMES AND STRONG OXIDANTS. INSPECT FOR LEAKS IN ALL CONTAINERS.

OTHER PRECAUTIONS:

DO NOT STORE IN FREEZING AREAS. KEEP ABOVE 40 degrees F. KEEP OUT OF REACH OF CHILDREN.

* * DISCLAIMER- THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED
* * ACCURATE. HOWEVER, NO WARRANTY, WHETHER EXPRESSED OR IMPLIED IS MAE.

TEST REPORT

1. No :SSR2802006

2. Client

- o Name : NOROO Paint &Coatings Co., Ltd. Kim Soo Kyoung
- o Address : 615, Bakdal 2-dong, Manan-gu, Anyang-si, Gyeonggi-do, Korea
- o Date of Receipt : 2012/08/02
- o Date of Issued : 2013/02/19

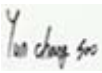
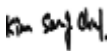
3. Use of Report : Quality management

4. Test Sample : Cleansol-Flat (MPI #10)

5. Test Results

| Test Items | Unit | Sample | Test Results | Test method used |
|------------------------|------|--------|--------------|------------------|
| Consistency | K.U. | 1 | 112 | MPI # 10 : 2007 |
| Dry time, Dry hard | min | 1 | 20 | MPI # 10 : 2007 |
| Finess of Grind | NS | 1 | 5 | MPI # 10 : 2007 |
| Gloss 60 degree | - | 1 | 4 | MPI # 10 : 2007 |
| Hiding power | % | 1 | 99 | MPI # 10 : 2007 |
| Reflectance | % | 1 | 94 | MPI # 10 : 2007 |
| Alkali Resistance | - | 1 | pass | MPI # 10 : 2007 |
| Scrubability | - | 1 | pass | MPI # 10 : 2007 |
| Early Water Resistance | - | 1 | pass | MPI # 10 : 2007 |
| Accelerated Weathering | - | 1 | pass | MPI # 10 : 2007 |
| Flexibility | - | 1 | pass | MPI # 10 : 2007 |
| VOCs content | g/L | 1 | 15.1 | EPA Method 24 |

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| | | | | |
|--|-----------|---|-----------------------|---|
| Affirmation | Tested by |  | Technical Manager |  |
| | Name : | | Name : Kim, Sang Chul | |
| <small>Our report apply only to the standard or procedures identife and to the sample(s) tested unless otherwise specified. The test results are not indicative of repressentative of the qualities of the lot from which the sample was taken or of apparently identical or similar products.</small> | | | | |

Korea Conformity Laboratories President Jae Bi 

Address : 459-28, Gasan-dong, Geumcheon-Gu, Seoul, Korea 031-888-9463

Result Inquiry : Advanced Materials Reliability Center ☎031-429-3454

TEST REPORT

No : SSR2802006

Test Results

| Test Items | Unit | Sample | Test Results | Test method used |
|---------------------------------------|------|--------|--------------|------------------|
| Biological growth(Fungal growth test) | - | 1 | 9 | MPI #10 : 2007 |

- - - - End of Report - - - -