



**Laboratory Testing Report**

<b>Company</b>	Noroo Paint And Coatings
<b>Contact Name</b>	Sung Woo Jung swjung@noroo.com Yun-jae So syj@noroo.com
<b>Report Date</b>	November 15, 2018
<b>Category</b>	Detailed Performance
<b>Category Type</b>	Initial
<b>IPS#</b>	3025-I-2018-94-16471
<b>MPI Category #</b>	94
<b>Product Label</b>	NOROO
<b>Product Name</b>	Super Enamel Exterior semi gloss
<b>Product Code</b>	NA
<b>Batch Number</b>	118A SEPT 1113A
<b>Testing Results</b>	<b>PROVISIONAL</b>
<b>Approval Expiry Date</b>	6 months
<b>Failure Notice</b>	
<b>Comments</b>	Provisional Pass- Biological Testing required.
<b>MPI Technical Director</b>	<b>Bob Welch</b>
<b>MPI Senior Admin Assistant</b>	<b>Matt Jacobs</b>
<b>MPI Invoice #</b>	<b>D18-1013</b>

**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.**

**2800 Ingleton Avenue, Burnaby, BC V5C 6G7 Canada  
Tel: 604-298-7578 Fax: 604-298-7571  
Toll-Free Tel: 1-888-674-8937, Toll Free Fax: 888-211-8708  
November 15, 2018**

# Super Enamel Exterior-Semigloss (MPI 94) Alkyd Semi-Gloss (MPI Gloss Level 5) Exterior

## ■GENERAL INFORMATION

This paint is based on Alkyd-based paint, colored semi-gloss finish, intended for use on new or previously painted exterior wood and metal surface. This product will be primarily used for residential and commercial buildings, on trim, doors, frames and siding.

## ■SUITABLE USE

The Paint complying with this specification is intended for use on new or previously painted interior surfaces including primed wood and metal surfaces.

## ■SPECIFICATION

A. Type: Alkyd resin / Semi-Gloss /Exterior

B. Drying Times:	5 °C	20 °C	30 °C
Set to Touch	7H	3H	2H
Dry Hard	36H	15H	12H
For Over coat (Min.)	48H	24H	18H

\* H: Hour

C. Consistency: Ready for use

D. Thinner: DR-291 (Max. 10%)

E. Specific Gravity: Appr. 1.28

F. Theoretical Coverage: 5~7 m<sup>2</sup>/L/2 coats/60μ  
(Dry film thickness)

G. Shade: White and tints

H. Texture: Semi-Gloss (Gloss 60 degree : 35 - 70 )

## ■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 -

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

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

\* 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, weather conditions during application and application method, so that you are urged fully to review them prior to your practical application.

\* The date of issue: 2009.04

# MATERIAL SAFETY DATA SHEET

## SECTION 1 - PRODUCT INFORMATION

A. PRODUCT NAME: Green Enamel Exterior-Semigloss (MPI 94)  
B. MANUFACTURERS NAME: NOROO PAINT. Co. LTD.  
615 PARK DAL DONG, AN YANG CITY  
KYUNG KI DO, KOREA  
TEL: (031)467-6157

## SECTION 2 - HAZARDOUS INGREDIENTS

CHEMICAL NAME	CAS NO	CONTENTS
ALKYD RESIN	N/A	45 ~ 55
Titanium Dioxide	13463-67-7	30 ~ 40
DEODORIZED KEROSENE	8020-83-5	5 ~ 10
Silicone Dioxide, Hydrate	7631-86-9	<5
S1	N/A	<5

S1: SALE SECRET

## Section 3 - HAZARDS IDENTIFICATION

### ROUTES OF EXPOSURE

Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use.  
To minimize exposure, follow recommendations for proper use, ventilation, and personal protective equipment.

### ACUTE Health Hazards

### EFFECTS OF OVEREXPOSURE

Irritation of eyes, skin and respiratory system. May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

### SIGNS AND SYMPTOMS OF OVEREXPOSURE

Redness and itching or burning sensation may indicate eye or excessive skin exposure.  
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure sensitization.

This effect may be delayed several hours after exposure.

Symptoms may not be immediately apparent. Obtain medical attention.

### SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

## Section 4 - FIRST AID MEASURES

If any breathing problems occur during use, LEAVE THE AREA and get fresh air. If problems remain or occur later, IMMEDIATELY get medical attention.

If Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

If Flush eyes with large amounts of water for 15 minutes.

Get medical attention.

If Get medical attention.

## **SECTION 5 - FIRE AND EXPLOSION HAZARD DATA**

FLAMMABILITY CLASSIFICATION:

FLASH POINT: 35 °C (MAX)

EXTINGUISHING MEDIA: FOAM, ALCOHOL FOAM, CO<sub>2</sub>, DRY CHEMICAL, WATER FOG

UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame.

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions. During emergency

'conditions overexposure to decomposition products may cause a health hazard.

Symptoms may not be immediately apparent. Obtain medical attention.

**SPECIAL FIRE FIGHTING PROCEDURES**

Full protective equipment including self-contained breathing apparatus should be used. Water spray may

be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers

to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

## **Section 6 - ACCIDENTAL RELEASE MEASURE**

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

Remove all sources of ignition. Ventilate and remove with inert absorbent.

**WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA Hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container.

Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

## **Section 7 - HANDLING AND STORAGE**

**DOL STORAGE CATEGORY-1B**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated-Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition. Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use.

Transfer only to approved containers with complete and appropriate labeling.

Do not take internally. Keep out of the reach of children.

**OTHER PRECAUTIONS**

This product must be mixed with other components before use. Before opening the packages,

**READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.**

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

## **Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION**

**PRECAUTIONS TO BE TAKEN IN USE**

NO PERSON SHOULD USE THIS PRODUCT, OR BE IN AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section II) which may be present at hazardous levels only during sanding or abrading of the dried film.

If no specific dusts are listed in Section II, the applicable limits for nuisance dusts are ACGIH TLV 10 mg./m<sup>3</sup>(total dust), OSHA PEL 15 mg./m<sup>3</sup>(total dust), 5mg./m<sup>3</sup>(respirable fraction)

## VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section II is maintained below applicable exposure limits.

## RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly protection against materials in Section II may be effective. Follow respirator manufacturer's directions for use.

Wear the respirator for the whole time of spraying and until all vapors and mists are gone.

NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.

When Sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

## PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section II.

## EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

## OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

## SECTION 9 - PHYSICAL PROPERTIES

<b>BOILING RANGE</b>	<b>138 °C(AVER)</b>
VAPOR DENSITY	N/A
SPECIFIC GRAVITY	1.28±0.2

## Section 10 - STABILITY AND REACTIVITY

STABILITY -- stable

OTHER PRECAUTIONS

INCOMPATIBILITY -- None known

HAZARDOUS DECOMPOSITION PRODUCTS -By fire;Carbon dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION -Will not Occur can be harmful or fatal.

## Section 11 - TOXICOLOGICAL INFORMATION

CHRONIC Health Hazards

No ingredient in this product is an IARC,NTP or OSHA listed carcinogen.

Prolonged overexposure to solvent ingredients in Section II may cause adverse effects to the liver, urinary, blood forming, cardiovascular and reproductive systems.

Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.

No Information Available

## Section 12 - ECOLOGICAL INFORMATION

No Information Available

## Section 13 - DISPOSAL CONSIDERATIONS

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act(RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container.

Dispose of in accordance with Federal, State, and Local regulations regarding pollution.

## Section 14 - TRANSPORT INFORMATION

Class : 3 , UN Number : 1263 , Technical name : Paint , Marine Pollutant : nothing

**Section 15 - REGULATORY INFORMATION**

TSCA Status

In compliance with TSCA Inventory requirements for commercial purposes.

**Section 16 - ADDITIONAL INFORMATION**

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

# TEST REPORT

1. No : SSR2802024

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 : Super Enamel Exterior-Semigloss(MPI #94)

5. Test Results

Test Items	Unit	Sample	Test Results	Test method used
Consistency, Krieb Units	K.U	1	115	MPI # 94 : 2010
Dry time, Dry hard	h	1	3	MPI # 94 : 2010
Dry time, Tack free	h	1	1	MPI # 94 : 2010
Finess of Grind, Hegman	N.S	1	7	MPI # 94 : 2010
Flash point	℃		42	MPI # 94 : 2010
Gloss 60 degree	-	1	51	MPI # 94 : 2010
Hiding power	%	1	99.99	MPI # 94 : 2010
Reflectance	%	1	93.5	MPI # 94 : 2010
Flexibility - Appearance (cracking, peeling, loss of adhesion)	-	1	pass	MPI # 94 : 2010
Water resistance - Appearance (wrinkling, blistering, lifting, loss of adhesion)	-	1	pass	MPI # 94 : 2010

- - - - continued on the next page - - - -

Affirmation	Tested by	Technical Manager
	Name : <i>Yoo Chang Soo</i>	Name : Kim, Sang Chul <i>Kim Sang Chul</i>

Our report apply only to the standard or procedures identifide and to the sample(s) tested unless otherwise specified.  
The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products.

**Korea Conformity Laboratories** President Jae Bi *Jae Bin Song*

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

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

# TEST REPORT

No : SSR2802024

## Test Results

Test Items	Unit	Sample	Test Results	Test method used
Applicability and Appearance	-	1	pass	MPI # 94 : 2010
Accelerated wethering - 500 h, UV condensation exposure	-	1	pass	MPI # 94 : 2010
Biological growth	-	1	9	MPI # 94 : 2010
VOCs content	g/L	1	372.6	USEPA Method 24 : 2000

- - - - End of Report - - - -