



**VARATHANE® NANO DEFENCE®  
PREMIUM FLOOR FINISH  
WATER BASED**

**DESCRIPTION AND USES**

Varathane Nano Defence® Premium Clear Floor Finish is made from a patented Aluminum Oxide formula. Varathane Nano Defence is one of the most durable floor finish in the market with the same quality of a professional finish. It's 3-4 times more resistant to scratches and scuffs than conventional floor finishes – providing ultimate protection from everyday foot traffic. Varathane Nano Defence is crystal clear, virtually odourless and provides for easy water clean up.

When it comes to polyurethanes, one formula does NOT fit all projects. Only Varathane offers application specific formulations:

**Application**

Premium Diamond Wood Finish  
Premium Diamond Floor Finish  
Premium Diamond Outdoor Finish

**Protection**

Scratch and Stain  
Scuff and Scratch  
UV Protection & Weatherability

For Interior projects use Varathane Premium Diamond Wood Finish which provides the best scratch and stain resistance available. For Outdoor projects use Varathane Premium Diamond Outdoor Finish with powerful UV absorbers to guard against sun damage.

**PRODUCTS**

| Type  | Satin   | Semi-Gloss | Gloss   | Matte  |
|-------|---------|------------|---------|--------|
| 3.78L | Y247502 | Y247503    | Y247504 | 281773 |
| 946mL | 254216  | 254215     | 254214  | 281776 |

**RECOMMENDED COMPANION PRODUCTS**

Recommended use with Varathane Premium Oil Stains and Varathane Ultimate Stains.

**PRODUCT APPLICATION**

**PREVIOUSLY FINISHED SURFACES**

For best adhesion, surfaces must be clean, dry and free of wax, grease, oil, shellac, lacquer, mildew and polishes. Waxes must be removed with a wax stripper; sanding does not remove wax. Shellac must be removed with a paint stripper. Previously finished floors in good condition should be cleaned with a T.S.P. (Tri Sodium Phosphate) solution in water, and rinsed thoroughly with clean water. Do not use T.S.P. on bare wood floors as discolouring will occur. Some types of prefinished laminate or factory finished floors may not be compatible with Varathane Nano Defence. Refer to the Varathane Floor Finishing brochure or visit [www.varathane.com](http://www.varathane.com) for test procedures. Old finishes in poor condition must be removed. Use the Varathane ezV® floor sander to obtain a smooth surface. Do not use steel wool as rust may develop after the finish has been applied. Remove all sanding dust using a vacuum or cloth dampened with mineral spirits.

**STAINED OR PAINTED WOOD**

Follow manufacturer's direction for application of stain or paint. Make certain surface is thoroughly dry before applying Varathane Nano Defence. Refer to manufacturer's label for dry times. For best results, use Varathane Premium Wood Stains.

**UNFINISHED SURFACE PREPARATION**

Using the Varathane ezV® sander, sand the new wood surface. Remove dust with a rag dampened with mineral spirits, or with a vacuum. Remove all sanding dust using a rag dampened with mineral spirits, or vacuum. If a filler or putty is used, make sure that it does not contain wax and allow for enough time to dry thoroughly. Refer to the Varathane Floor Finishing brochure for more information.

**APPLICATION TIPS**

Product appears milky when wet but dries to a crystal clear finish. Use adequate ventilation at all times. Apply only when the air and surface temperatures are above 13°C (55°F), and below 32°C (89°F). Use care when applying over white or pastel paints or stains as discolouration may occur. To prevent bubbles in the finish, do not over-brush, shake or apply with a roller. Test Varathane Nano Defence in an inconspicuous area before beginning. Testing is particularly important when applying over paints or stains as the appearance of these products may change when a water based finish is applied.

When using multiple containers of product, intermixing (boxing) should be done to ensure sheen uniformity.



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**PRODUCT APPLICATION (CONTINUED)**

**APPLICATION (Brush)**

- 1.) Stir thoroughly before and during use. **DO NOT SHAKE**, shaking will create bubbles in the finish. Do not use a roller or over-brush. Use a tray to apply the product. Ensure stain is dry 48 hours as finish could removed the stain.
- 2.) Apply using a good quality, synthetic bristle brush, foam brush, or applicator. Edge with the brush and use the pad applicator for the remaining floor surface going lengthwise with the grain of the wood.
- 3.) Allow finish to dry minimum of 2 hours before re-coating. Lower temperatures and/or higher humidity may cause slower dry times. Re-coat only when previous coats have dried clear and feel hard. (Should no longer feel tacky to the touch.) A powder should develop when lightly sanded. If any coat has dried more than 24 hours, lightly sand before re-coating to avoid brush marks.
- 4.) Apply additional coats following directions above. A minimum of 4 coats is recommended. If grain raise occurs, sand smooth before final coat. Allow finish to dry 24 hours before light use. Wait 3 days before subjecting surface to normal usage.

5 Year Scratch Proof Guarantee – Varathane Nano Defence is guaranteed to provide superior protection against scratches for wood floors from everyday foot traffic 14 days after application (full cure). Guarantee does not apply to scratches that may result from excessive abuse such as dragging furniture or appliances.

LIMITED WARRANTY – Liability is limited to replacement of product only or refund of the purchase cost.

**EQUIPMENT RECOMMENDATIONS**

AIR-ATOMIZED SPRAY:

| Type of Gun             | Fluid Tip                    | Atomizing Pressure        |
|-------------------------|------------------------------|---------------------------|
| Standard Compressed Air | 1.0-1.3mm<br>(0.039"-0.051") | 45-80 p.s.i.              |
| HVLP Turbin             | 1.0-1.3mm<br>(0.039"-0.051") | 10 p.s.i.                 |
| HVLP Conversion         | 1.0-1.3mm<br>(0.039"-0.051") | 10 p.s.i.<br>(at the tip) |

**SPRAY TIPS**

\*Fluid Tips must be plastic or stainless steel.

**PRODUCT APPLICATION (CONTINUED)**

**CLEANUP**

For fast, easy clean-up, use water. For guidance on disposal of unused product, contact your local or provincial government environmental control agency.

**BEST PROJECT USAGE:** Interior bare wood or stained floors.

**NOT RECOMMENDED FOR:** Linoleum, vinyl or glazed tiles and metal.

**DO NOT ALLOW PRODUCT TO FREEZE**

**PERFORMANCE CHARACTERISTICS**

**PENCIL HARDNESS**

METHOD: D3363  
RESULT: 4H

**CHEMICAL RESISTANCE KCMA** Rating 1-5 5= No defects

|                   |                       |
|-------------------|-----------------------|
| Vinegar           | 5                     |
| Lemon juice       | 5                     |
| Grape juice       | 5                     |
| Orange juice      | 5                     |
| Catsup            | 5                     |
| Coffee            | 5                     |
| Olive Oil         | 5                     |
| 100 proof alcohol | 4 stains and recovers |
| mustard           | 5 slight stain        |
| 409               | 4                     |
| Windex            | 4                     |
| Water             | 5                     |

**HOFFMAN SCRATCH**

Method: D2197  
2.9 kilograms to rupture

**IMPACT RESISTANCE** Direct/Reverse

METHOD: D2794  
RESULT: 120/90

**TABER ABRASION**

METHOD: ASTM D4060  
RESULT: Approx. 34 mg loss CS 17 1000g 1000 cycles

**GLOSS (60°)**

METHOD: D523  
RESULT: 25/55/80

# TECHNICAL DATA



# VARATHANE® NANO DEFENCE® PREMIUM FLOOR FINISH WATER BASED

## PHYSICAL PROPERTIES

|  |             | Matte  | Satin  | Semi-Gloss                                      | Gloss  |
|--|-------------|--|--|---|--|
| Resin Type   |             | Urethane-Acrylic   | Urethane-Acrylic                               | Urethane-Acrylic                                | Urethane-Acrylic                               |
| Pigment Type   |             | Matting agents and Aluminum Oxide  | Matting agents and Aluminum Oxide              | Matting agents and Aluminum Oxide               | Aluminum Oxide                                 |
| Solvents   |             | Glycol ethers-water  | Glycol ethers-water                            | Glycol ethers-water                             | Glycol ethers-water                            |
| Volatile Organic Compounds*                                      |             | Less than 275g/l (2.2 lb/gal)  | Less than 275g/l (2.2 lb/gal)                  | Less than 275g/l (2.2 lb/gal)                   | Less than 275g/l (2.2 lb/gal)                  |
| Weight Per Gallon  | Per Gallon  | 8.4-8.6 lb   | 8.4-8.6 lb                                     | 8.4-8.6 lb                                      | 8.4-8.6 lb                                     |
|  | Per Liter   | 1.00-1.03 kg   | 1.00-1.03 kg                                   | 1.00-1.03 kg                                    | 1.0-1.03 kg                                    |
| Solids   | By Weight   | 30-32%   | 30-32%   | 30%-32%   | 30-32%   |
|  | By Volume   | 29-31%   | 29-31%   | 29-31%  | 29-31%   |
| Recommended Dry Film Thickness (DFT) Per Coat                    |             | 0.8 – 1.5 mils (19-38µ)  | 0.8 – 1.5 mils (19-38µ)                        | 0.8 – 1.5 mils (19-38µ)                         | 0.8 – 1.5 mils (19-38µ)                        |
| Wet Film to Achieve DFT Per Coat                                 |             | 1½ - 3 mils (37.5-75µ)   | 1½ - 3 mils (37.5-75µ)                         | 1½ - 3 mils (37.5-75µ)                          | 1½ - 3 mils (37.5-75µ)                         |
| Theoretical Coverage @ 1mil DFT (25µ)                            |             | 465-495 sq ft/gal (11.4-12.1m <sup>2</sup> /l)   | 465-495 sq ft/gal (11.4-12.1m <sup>2</sup> /l) | 465-495 sq ft/gal (11.4- 12.1m <sup>2</sup> /l) | 465-495 sq ft/gal (11.4-12.1m <sup>2</sup> /l) |
| Practical Coverage @ Recommended DFT (Assumes 15% Material Loss) |             | 395–420 sq ft/gal (9.7-10.3m <sup>2</sup> /l)  | 395–420 sq ft/gal (9.7-10.3m <sup>2</sup> /l)  | 395-420 sq ft/gal (9.7-10.3 m <sup>2</sup> /l)  | 395-420 sq ft/gal (9.7-10.3m <sup>2</sup> /l)  |
| Dry Times at 70°-80°F (21°-27°C) and 50% Relative Humidity       | Tack Free   | 1 hours  | 1 hours  | 1 hours   | 1 hours  |
|  | Handle      | 1.5 hours  | 1.5 hours                                      | 1.5 hours                                       | 1.5 hours                                      |
|  | Recoat      | 2 hours  | 2 hours  | 2 hours   | 2 hours  |
| Dry Heat Resistance  |             | 212°F (100°C)  | 212°F (100°C)                                  | 212°F (100°C)                                   | 212°F (100°C)                                  |
| Shelf Life   |             | 3 years  | 3 years  | 3 years   | 3 years  |
| Safety Information   | Flash Point | >212°F (100°C) Setaflash   | >212°F (100°C) Setaflash                       | >212°F (100°C) Setaflash                        | >212°F (100°C) Setaflash                       |
|  | Contains    | No lead has been deliberately added  | No lead has been deliberately added.           | No lead has been deliberately added.            | No lead has been deliberately added.           |
|  | Warning!    | <b>CONTAINS: GLYCOL ETHERS, N-METHYL PYROLIDONE<br/>WARNING. HARMFUL IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. WEAR EYE PROTECTION AND PROTECTIVE CLOTHING. REFER TO MATERIAL SAFETY DATA SHEET FOR ADDITIONAL INFORMATION.</b> |  |   |  |

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