NOVALAB Systems Ltd.

Novalab Resistop™

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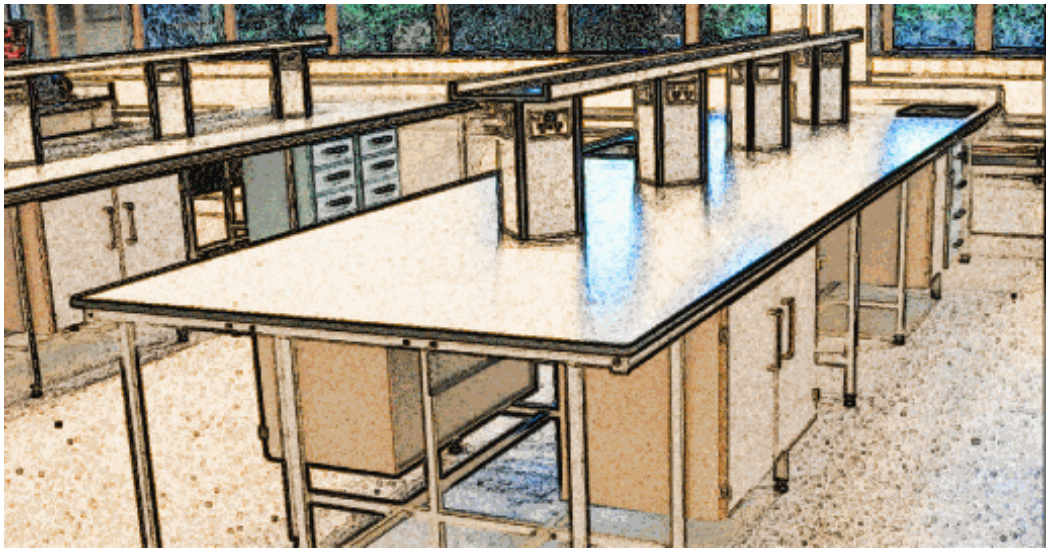
GREENGUARD Indoor Air Quality Certified

High Performance Solid Core Laboratory Bench Tops

Novalab Resistop



Leaders in Solid Core Solutions

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July 2008

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Novalab Resistop

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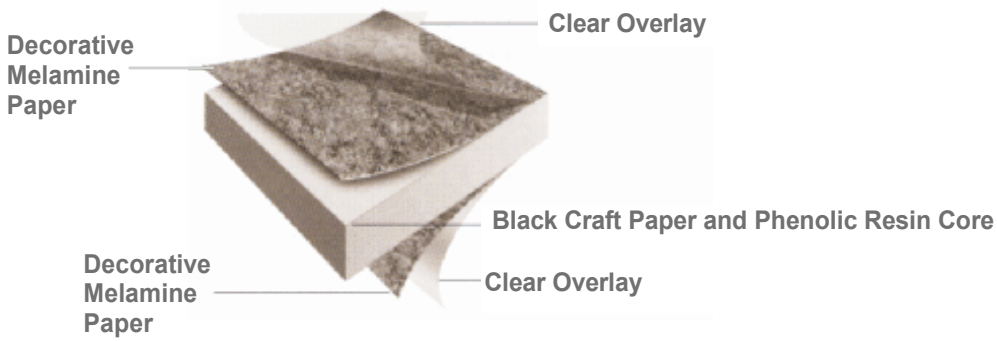
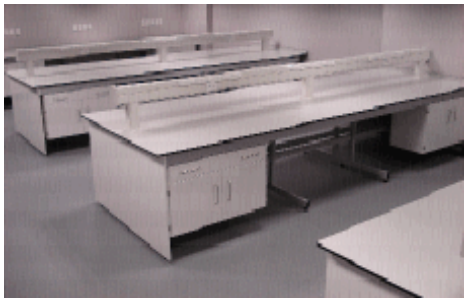
The next generation in high performance work surfaces



The core of Novalab solid panel products is manufactured from multiple layers of heavy craft paper impregnated with phenolic resin.
The decorative aspect is provided by high abrasion resistant melamine papers. The surface is finished with a specially developed polymer overlay and this give Resistop its excellent chemical resistance properties.
The resin and paper sandwich is then subjected to high pressure and temperature, which results in a solid, homogenous panel of extreme strength and durability.
Novalab solid core panels are manufactured from a minimum of 20% recycled materials. Only renewable forest products are used and they contain no heavy metals, rainforest timbers or tropical hardwoods.



By far, Resistop is Novalab's most successful solid core laboratory bench top yet. Introduced to the New Zealand market in mid 2002 to replace the previous generation solid core products, Resistop has established a track record of extreme resistance to staining and chemical damage as well as showing outstanding mechanical stability.

By early 2008, Novalab Resistop has been used in over 150 laboratory installations in New Zealand, PNG, Australia, Marshall Islands and Indonesia, with over 3,000 sheets of product having been processed.

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General Performance Characteristics

Novalab solid core products provide a range of superior bench top options at **affordable prices**. With costs similar to traditional laminate alternatives, Novalab products provide outstanding performance features that guarantee long life and exceptional durability in a wide range of applications.

No matter what the environment, Novalab products all provide the following exceptional features.

- No MDF or chipboard support needed, so there are no weak points for water to attack
- Totally moisture resistant so that it cannot de-laminate. Sinks can be under mounted to allow easy cleaning and taps can be fitted into the bench top with no concerns about possible water damage
- Cannot rot and will not allow bacteria or fungi to grow making it the most hygienic surface for a wide range of applications
- Finished on both sides for total performance
- Easy to clean. Simply wipe down with common liquid household cleaners, sanitisers or detergents. Avoid abrasive cleaners.
- No edge clashing. The solid core means that there are no edgings to fall off or trap dirt.
- Impact resistant and fire retardant making for a safer, more durable installation.
- Slim line bench tops that are a design feature in their own right, adding a stunning extra dimension to complement any furniture concept.
- High abrasion resistance means long life
- Anti-static. Safe to use with sensitive electronic equipment
- Suitable for all physical containment standards
- Can easily be cut to length or extended on site making installation simple and cost effective. On site variations are no longer a problem.

Novalab Resistop Is

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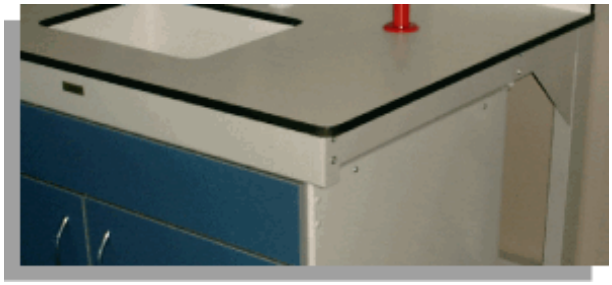
True Chemical Resistance

One of the reasons for the on going success of Resistop is its true chemical resistance. Tested using methods that comply with **AS/NZS 2924.1 1998**, Resistop has been used in many of the most demanding laboratory environments. In some cases, Resistop has successfully replaced other products that have not been tested to the same standards and only have limited chemical resistance.



Resistop Applications

Microbiology Labs including PC2 up to PC4
Fertility Labs (With The Extra Benefit Of **GreenGuard** Certification)
Medical, Healthcare and Dental Labs
Photography Labs
Research and Development Labs
Testing Labs
Pharmaceutical Labs
Schools, Universities and Other Educational Labs
Government Facilities
Forensic Labs

Bench Tops
Fume Cupboard Bases
Chemical Storage Shelves
Drainer Boards
Drying Racks
Chemical and biological resistant wall liners
Case work

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PLEASE NOTE

Novalab Resistop is designed to resist a wide range of chemicals and stains as well as possessing exceptional resistance to the many mechanical challenges of a laboratory environment.
However, no one material is suitable for all possible conditions and applications. Please request a sample for testing to ensure that the product meets your specific needs.

Novalab
Resistop

NOVALAB RESISTOP

Chemical and Stain Resistance

NOVALAB RESISTOP is tested for chemical and stain resistance using NEMA LD3-2000 test methodology. Each of the chemicals listed below is placed on the work surface, covered with a 1" (25.4mm) watch glass and left for 16 to 24 hours. The surface is then evaluated for damage, colour change or staining. This test methodology also complies with **AS/NZS 2924.1 1998** and meets all relevant New Zealand standards

Acids

Acetic Acid (*all concentrations)*
Aqua Regia **
Chromic Trioxide*
Formic Acid (*all concentrations)**
Glacial Acetic Acid (*99%*)*
Hydrochloric Acid (*all concentrations)*
Hydrofluoric Acid (*48%)**
Nitric Acid (*conc)***
Perchloric Acid (*concentrated)*
Phosphoric Acid (*all concentrations)*
Picric Acid (1.2%)
Sulphuric Acid (*conc)***
Tannic Acid (*saturated)*
Uric Acid *(saturated*

Bases

Ammonium Hydroxide *(all concentrations)*
Sodium Hydroxide *(conc)***
Sodium Sulphide (15%)

Solvents

Acetone
Amyl Acetate
Amyl Alcohol
Butyl Alcohol
Carbon Disulphide
Carbon Tetrachloride
Chlorobenzene
Chloroform
Cresol
Dimethyl Formamide
Dioxane
EDTA
Ethyl Acetate
Ethyl Alcohol
Formaldehyde
Methanol
Methyl Ethyl Ketone
Methylene Chloride
Naphthalene
n-Hexane
Phenol *(all concentrations)**
Tetrahydrofuran
Toluene
Trichloroethane
Xylene

General Reagents

Alconox
Aluminon
Ammonium Phosphate
Aromatic Ammonia
Benedict's Solution
Blood
Calcium Hypochlorite
Cellosolve
Camphorated para-Chlorophenol*
Copper Sulphate
Ether 1:20
Ethylene Glycol
Eucalyptol
Formalin
Gasoline
Hydrogen Peroxide (3%)
Iodine
Karl Fisher Reagent
Kerosene
Lactated Ringers
Methyl Methacrylate
Milk
Mineral Oil
Monsel's Solution
Naphtha
Orange Juice
Petroleum Jelly
Phosphate Buffered Saline
Pine Oil
Potassium Permanganate
Povidone Iodine
Procaine
Quaternary Ammonium Compounds
Silver Nitrate
Sodium Azide
Sodium Chromate
Sodium Hypochlorite (5%)
Sodium Thiocyanate
Sucrose (50%)
Thymol and Alcohol
Tincture of Iodine
Tincture of Mercurochrome
Tincture of Merthiolate
Trisodium Phosphate (30%)
Urea
Vegetable Oil
Vinegar
Water
Zephiran Chloride
Zinc Chloride
Zinc Oxide Ointment

Stains and Indicators

Ag Eosin Bluish 5% in alcohol
Bromothymol Blue
Cresol Red
Crystal Violet
Gentian Violet (1%)
Gram Stains
Malachite Green
Methyl Orange
Methyl Red
Methylene Blue
Indian Ink
Phenolphthalein
Safranin O
Sudan III
Thymol Blue
Wright's Blood Stain

Novalab in house testing

Resistop samples were exposed to the following chemicals for 72 hours. The sample reagents were left uncovered as would be the case in a laboratory spill.

Sulphuric Acid (2 molar)
Hydrochloric Acid (2 molar)
Nitric Acid (2 molar)
Sodium Hydroxide (2 molar)+
Iodine+
Silver Nitrate+
Potassium Permanganate+
(+Evaporated to dryness over the test period)

After 72 hours these chemicals were washed off and left no visible marks, no staining or colour change.

* May cause slight change in gloss or colour
** Higher concentrations may affect the surface or cause a change in gloss or colour. The nature and degree of any effect is proportionate to the length of exposure and concentration.
Other chemicals have no effect

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Technical Information

Panel Sizes

6 mm and 16mm thick as usually held in stock
Sheet sizes are 3,000 mm x 1,500 mm
(other sizes are available on special order)

Physical Properites

Compressive Strength

PSI	**Kpa**
M.D. 31,000	193,064
C.D. 25,000	172,378

Flexural Strength

PSI	**Kpa**
M.D. 23,000	158,588
C.D. 15,000	103,427

Tensile Strength

PSI	**Kpa**
M.D. 22,000	151,693
C.D. 16,000	110,322

Rockwell Hardness
M Scale: 95-115

Specific Gravity
1.40-1.52 Approximate weight is 22.14 Kg per square metre at 16 mm thick

Water Absorption
16mm approximately 0.4%

Operating Temperature Range
Up to 120c continuously. Up to 180c maximum

Resistop is a Registered Trade Name of Novalab Systems Ltd

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Novalab Resistop™ Technical Specifications

Laboratory grade 16 mm thick solid core phenolic resin high pressure laminate with high performance chemical resistant surface finish.

Please note: There is currently no single internationally recognized performance standard for the chemical resistance properties of laboratory bench tops. The standard that applies in New Zealand is AS/NZS 2924.1 1998. This calls for all test chemicals to be left in contact with the test surface for 16 to 24 hrs and then the results to be assessed. Some test results list chemicals that must be wiped off immediately, or within 15 minutes to avoid damage. These tests do not comply with New Zealand standards and are generally used for products with limited chemical resistance.

Novalab Resistop™ complies with the requirements of:
AS/NZS 2982.1 1997
AS/NZS 2924.1 1998

Meets or exceeds the performance standards set by:
NEMA LD3 – 2000

US Certified by the GreenGuard Environmental Institute as a no or low emission product for volatile organics or formaldehyde

LEED – CI credit for low emitting office furniture systems (Leadership in Energy and Environmental Design Rating System for Commercial Interiors)

SEFA 8 – 1999 Scientific Equipment and Furniture Association, laboratory case work

ASTM D257 – 78 Anti – static protective material

UL Class 1 Fire Rating

Installation should be carried out as per the supplier's instructions.

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GreenGuard

Globally, there is a growing awareness of the environment and the adverse effects of man's activities. These concerns have also begun to focus on our indoor environments, our living and working spaces. Over the past few years it has been established that the levels of volatile organic and toxic chemicals emitted by many of the fabrics, finishes and furnishings in new buildings have reached levels in indoor air that are potentially very harmful. In some cases, the measured levels of known toxins, such as formaldehyde, have been almost triple the maximum recommended industrial exposure limits.

In response to this problem, the GreenGuard Environmental Institute (GEI) was established as an independent, non-profit making, testing and certification body. As an ANSI Accredited Standards Developer, the GEI establishes acceptable standards and testing protocols for indoor products. To receive Greenguard certification, a product must pass the institute's stringent chemical emission tests and conform to its strict standards. This certification ensures architects, designers, manufacturers and end users that Novalab GreenGuard certified products add no contaminants to the indoor air.

Novalab Resistop is certified under the **GreenGuard** testing program as a no-emission product and guarantees that Novalab Resistop and Duratop Classic will add no contaminants to the indoor environment.

In North America, Novalab Duratop Classic is also classed as suitable for work surfaces on Greenguard-certified office furniture to obtain a LEED-CI credit for Low Emitting Office Furniture (Leadership in Energy and Environmental Design Rating System for Commercial Interiors), making it a true, healthy choice for the improvement of all indoor spaces.

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Novalab Duratop Classic

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