



## Frequently Asked Questions

### Product Packing and Coverage

- What is the packing size of Dr Hardolass and its coverage?  
Dr Hardolass comes in 20ml bottle and it covers about 40m<sup>2</sup> per bottle.

### Is there a patent filed for the Product?

- Dr Hardolass has applied the International patent for its product under PAT.P #2020-090889.

### How to Apply Dr Hardolass?

- Do we need to clean the surface before applying Dr Hardolass?  
You can wipe clean the surface with water or with regular disinfectant available in the market. Let the surface be completely dry before proceeding to apply Dr Hardolass.
- What can we used to apply Dr Hardolass?  
You can use a micro fiber cloth to spread Dr Hardolass on the surface to be applied.
- Do I need to wear a glove to apply Dr Hardolass?  
Wearing a glove will be recommended.
- Is Dr Hardolass coating safe on human skin? How to get it off the skin when in contact with the liquid?

Dr Hardolass is safe on human skin when it comes into contact, and this aspect has been tested in accordance to OECD Guidelines for the Testing of Chemicals, No. 439, In Vitro Skin Irritation: Reconstructed Human Epidermis Test.

When in contact with Dr Hardolass, please rinse with plenty of water. In any unlikely case of any irritation, please consult a doctor immediately.

- How long it takes to dry after application?  
It only takes 5 minutes to dry after application and the surface is ready for normal use.

### How to inspect the area that is supposed to be applied with Dr Hardolass? that it has been coated?

- Dr Hardolass is a nano-glass coating and it is water repellent. If water is sprayed on the coated surface, the water droplets will form a round profile.

### How long is the effectiveness of Dr Hardolass coating?

- Dr Hardolass coating can last for 5 years or more. The dense and durable inorganic coating has undergone accelerated weathering tests for 1, 3 and 5 years, and the tested surface still shown the presence of the glass coating.
- Dr Hardolass coating has also undergone Pencil Hardness testing (JIS Standard) and it has a hardness of 9H.

### What kind of surfaces can Dr Hardolass be applied on?

- Dr Hardolass can be applied on most surfaces such as metal, plastic, rubber and glass/ceramic:
  - Metal
    - Aluminium, copper, carbon steel, stainless steel, brass, zinc etching, metal plating, duralumin, iron
  - Plastics
    - Acryl, polyethylene, polypropylene, polycarbonate, polyester, epoxy, PMMA, PET, ABS
  - Rubber
    - IIR, NR, nitrile rubber, chloroprene rubber, EPDM, SBR, silicon rubber
  - Glass/Ceramic

### Is Dr Hardolass effective against the Coronavirus?

- Dr Hardolass has been tested against Influenza Type A virus and has proven to be effective in suppressing the virus. The test results shown that Dr Hardolass has achieved an anti-viral activity of 1.8, which means 98.4% reduction after 24 hours. Both Influenza Type A virus and Coronavirus fall into the same category of enveloped virus.
- Dr Hardolass has also been tested against Feline Calicivirus, which is a non-enveloped virus similar to Norovirus, and has been proven to be effective in inactivating this virus. The test result shown anti-viral activity of 4.1, which means 99.99% reduction after 24 hours.

### Is Dr Hardolass effective against Bacteria?

- Dr Hardolass has been tested against Staphylococcus Aureus and Escherichia Eoli and it has achieved a high reduction capability with anti-bacteria activity of 4.3 (99.99% reduction) and 6.2 (99.9999%) respectively after 24 hours.

Besides Dr Hardolass's Anti-Virus and Anti-Bacterial properties, are there any special features of its coating?

- As it is a nano-glass coating which is inorganic and dense, Dr Hardolass coating also has the following additional properties:
  - Anti-Fouling
  - Waterproof
  - Rust Prevention
  - Anti-Scratch
  - Acid and Alkali resistance
  - Weatherproof
  - Increased glossiness
  - Increased transparency
  - Resists Heat

What are the tests conducted to determine the properties of Dr Hardolass?

- The range of tests conducted are as follows and these test certificates are available upon request:
  - Anti-Viral Activity Test
  - Anti-Microbial Activity Test
  - Anti Mould Test
  - Pencil Hardness Test
  - Accelerated Weathering Test
  - OECD Guidelines for the Testing of Chemicals, No. 439, In Vitro Skin Irritation: Reconstructed Human Epidermis Test
  - OECD Guidelines for testing of Chemicals, No. 442B, July 22, 2010. Skin Sensitization: Local Lymph Node Assay: BrdU-ELISA
  - OECD Guidelines for the Testing of Chemicals, No, 420, Acute Oral Toxicity-Fixed Dose Procedure, December 17, 2001
  - European Toy Safety Standard EN71 Part 3: 2013

Is Dr Hardolass Certified by any reputable professional organisation in Japan ?

- Dr Hardolass has obtained its certification by SIAA, Society of International sustaining growth for Antimicrobial Articles, an organization dedicated for standardization and promotion of antibacterial and antiviral technology.
- Dr Hardolass has obtained the following certifications:
  - SIAA ISO 21702 – Anti-Virus performance and safety
  - SIAA ISO 22196 – Anti-Bacterial performance and safety
- To achieve the certification, SIAA also requires Manufacturer to achieve safety regulation in
  - Certificate for MIC (Minimum Inhibitory Concentration)
  - Acute Oral Toxicity Test
  - Primary Skin Irritation Test
  - Mutagenicity

- Skin Sensitization Test

Why is Dr Hardolass so expensive as compare to other disinfectants in the market? And Can it lasts 5 years?

- In terms of volume, it is true that Dr Hardolass is much more expensive than regular disinfecting coating. On the other hand, in terms of value, Dr Hardolass offers even more compare to these disinfecting coating.
- **5 years versus 3 months** - Dr Hardolass offers a 5 year or more protection against viruses and bacteria due to its dense and durable inorganic coating layer. Most disinfecting coatings in the market only offer a maximum of 1 or 3 months and re-application is required.
- The dense and durable inorganic Dr Hardolass coating has undergone accelerated weathering tests for 1, 3 and 5 years, and the tested surface still shown the presence of the glass coating.
- The unique hardness of 9H of its nano-glass coating offers high durability and protection against scratching, abrasion, weathering, acid, alkali, etc..
  - Unlike the regular disinfecting coatings, these coatings are bonded to the surface with a chemical adhesion and the days of protection are highly dependent on the abrasion and frequency of the surface's use.
  - Which means, in a high traffic area or very frequently touched surfaces, these regular disinfecting coating will wear off much faster than it claimed.
- In general, the efficacy of coatings depends on the following factors:
  - The adhesion quality of the coating to the applied surface (Dr Hardolass being a nano coating, it is strongly bonded to the surface with its quantum force instead of relying on adhesives like regular disinfecting coating)
  - The amount of virus and bacteria deposited on it (Dr Hardolass has a continuous reaction with the moisture in the air to produce activated radical ion that inactivate the viruses and bacteria. Moreover, being a nano-glass coating, it repels water, dirt, bacteria, and also makes it easy to be clean with just water or a damp cloth.)
  - Force asserted on the coated surface during cleaning (Dr Hardolass coating has a 9H hardness that overcome this issue)
  - Surface acidity (Dr Hardolass nano glass coating has the properties to resist acid as well as alkali)
  - Dirt Deposited (Dr Hardolass nano glass coating repels water, dirt and bacteria)