

Face Mask which Arrest and Kill COVID 19

拦截及杀灭新冠病毒的口罩



Curie Limited - Hong Kong

居安有限公司 - 香港

Curie Highlight

技术重点

- We secured a patent on "Air filtration system and manufacturing method having antiviral and antibacterial effectiveness by strong polycationic mechanism and composite" in the US and HK, patent covers 153 countries.
我们取得“利用强正极机制及配方使用于具有抗病毒及抗细菌的空气过滤系统”的美国与香港专利，覆盖 153 个国家。
- We are the first one in the world who successfully commercialized this composite with an extremely competitive production cost, and we are applying this mechanism on mask production.
我们是全球第一个将此机制及配方，以极具竞争力的成本，商用化及量产化，并应用于口罩制造上。
- Our composite achieved an ultra-high Viral Filtration Efficiency (VFE / > 99.9a%) and Bacterial Filtration Efficiency (BFE / > 99.9a%) according to ASTM F2101 and EN14683 testing method.
我们的配方能达致超高效病毒过滤效率 (VFE / > 99.9a%)、细菌过滤效率 (BFE / > 99.9a%)。
- Our composite achieved an ultra-high killing rate on COVID-19 (99.81%), H3N2 (99.99%) and Staphylococcus Aureus (99.99%).
我们的配方能达致超高效杀灭新冠病毒率 (COVID-19 99.81%)、杀灭流感病毒率 (H3N2 99.99%) 及杀灭金黄葡萄球菌率 (99.99%)。
- Our composite achieved an ultra-killing time on microorganism (< 60 seconds).
我们的配方能于 60 秒内杀死微生物。
- Our composite achieved an ultra-high Bacterial Filtration Efficiency (BFE / >99.9a%) after conditioning composite according to ASTM F1980-16 Ageing Process to simulate 5 years storage, which overachieve the requirements of western governments as strategic inventory on masks. Such requirements are the benchmark of western governments, they are all anticipating a material that can stay in high filtration efficiency on biohazards after lengthy storage.
我们的配方能于模拟 5 年老化效果后，维持细菌过滤效率 (BFE / > 99.9a%)，符合西方国家战略储存物资标准。我们的配方能于长久存放后维持高效生物危害过滤率。
- Our composite achieved a high Bacterial Filtration Efficiency (BFE / >95%) on a reusable mask, after washing 80 times with cold water and washing powders. It is the first mask in the world that stays in EN14683 medical grade after 80 times of washing.
我们的配方能应用于可重用水洗口罩上，能于手洗后 80 次达到细菌过滤效率 (BFE / > 95%)，符合欧盟 EN14683 医用标准。
- Our composite achieved an ultra-high killing rate on COVID-19 (99.28%) after washing 60 times with cold water and washing powders in washing machine.
我们的配方于可重用水洗口罩上，能于 60 次机洗后维持超高效杀新冠病毒率 (COVID-19 99.28%)。
- Our composite does not involve with any toxicity and heavy metals. Our major ingredient is a food additive approved by World Health Organization (WHO).

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我们的配方不涉及任何毒性或重金属物质，主要化学结构为世界卫生组织(WHO) 核准的食物添加剂。

- Our composite complies with safety standards for textile standard for infants.
我们的配方符合婴儿对纺织品的安全要求。
- Our composite achieved “Arrest” and “Kill” simultaneously with competitive production cost and durable performance in a safe chemical composite.
我们的配方能以极具竞争性的成本、长效高效性能及生物安全性，同时达到“拦截”及“杀灭”新冠病毒效果。
- We design and manufacture KV99 masks, which can achieve an almost perfect balance on production cost, filtration efficiencies on particulate / bacteria / virus, air permeability, anti-viral, anti-bacterial and durability than existing mask design.
我们设计并生产“KV99”口罩，于生产成本、粉尘/细菌/病毒过滤效率、透气度、杀毒效率、杀菌效率及存放时效上达至近乎完美的平衡，比传统熔喷布口罩优胜。
- Intertek granted Intertek Tick Mark on KV99 masks to endorse the quality, safety, performance, and functions of KV99 masks.
英国 Intertek 天祥集团为居安颁发杀毒口罩 Tick-Mark 认证，肯定“KV99”口罩的质量、安全、性能及功能。
- Our composite works more effectively on the latest mutated COVID-19, which has much more protein spikes, which means it is almost 10 times more negative in electric charge.
最新新冠病毒变种有比第一代多 10 倍的刺突蛋白，而刺突蛋白是负极性。强正极比偏负极的熔喷布在新冠病毒变种上更具优势。
- We launch the production of our composite in Hong Kong, and daily production capacity is 20 tons, which is scalable compared to meltblown production, which can only produce 1 ton per day for a 3 millions machine.
我们已在香港正式投产，每日产能能达 20 吨，相比起熔喷布生产更具成本效益。

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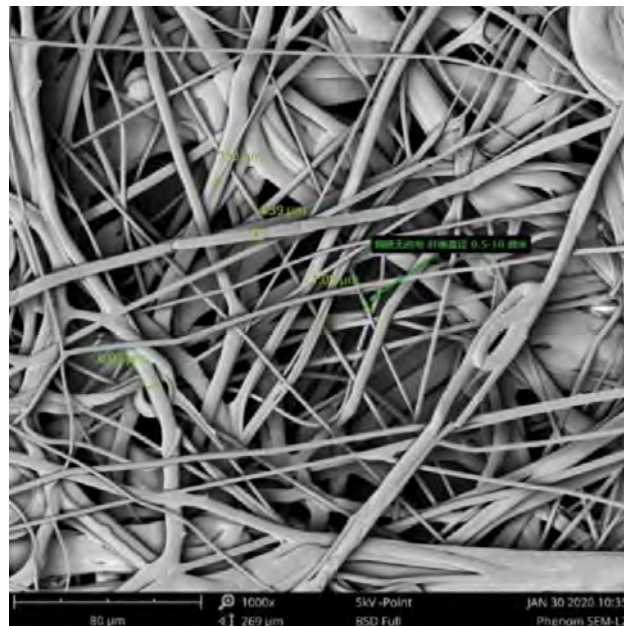
Curie Inception 居安起始

Mainstream material for air filtration is meltblown. Meltblown rely on physical electrostatic force to arrest COVID-19, but not relying on the fabric density. When particles are passing through meltblown fabric, they shall be induced by electrostatic force, and then attached to fabric surface.

传统空气过滤材料为熔喷布，熔喷布依赖物理静电拦截新冠病毒，而不是依靠纤维密度。当粉尘通过熔喷布时，粉尘会被静电感应，并依附于纤维表面上。

Electrostatic force is suffered from a fundamental shortcoming, it will be discharged by hot weather and high humidity, as a result, filtration efficiency will drop significantly.

物理静电有一个根本性问题，他们会因为高温及潮湿而放电，而导致过滤效率流失。

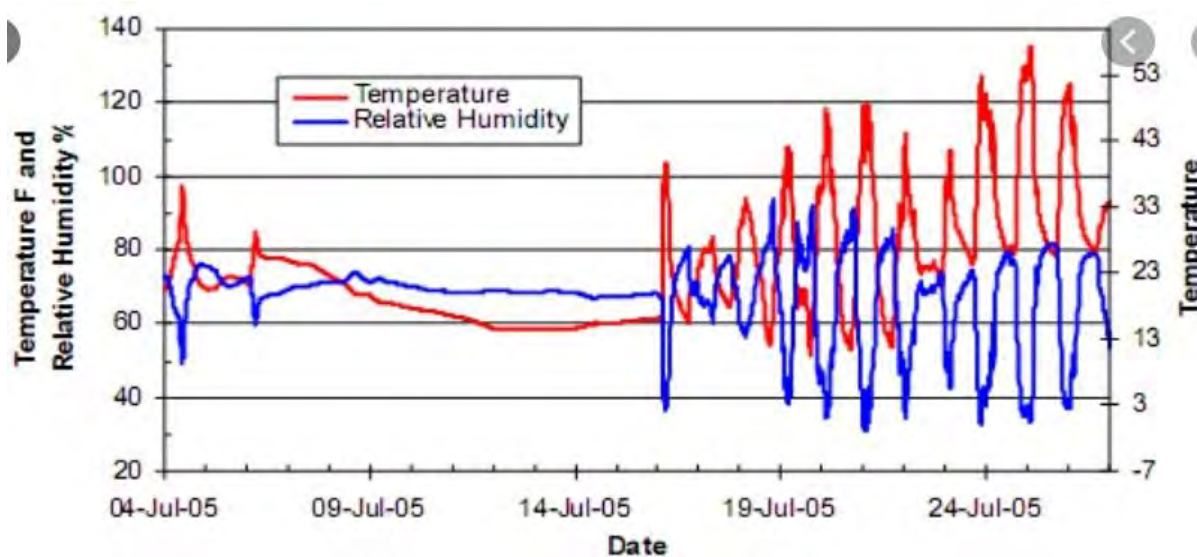


When masks are put into a freight container and shipped via ocean, extreme conditions during transit have severe impacts on the mask efficiency to protect against bacteria and viruses. The temperatures inside the container are cycled anywhere from 58°C to 16°C every day. Humidity levels on the ocean can reach detrimentally high levels. Such environments provide a perfect condition to discharge electrostatic force on masks and their meltblown. Seoul National University conducted an experiment in March 2020, that demonstrated that after the electrostatic force is discharged, the meltblown in masks cannot protect you much from dust, bacteria, and viruses.

当我们将成品口罩放入货柜，再透过海运出口时。每天货柜内的温差能达 58°C 至 16°C，再加上海洋上湿润空气，造成近符完美的静电放电环境，将熔喷布上的静电放电，对过滤效率造成严重影响。韩国首尔大学于 2020 年 3 月模拟熔喷布因运输过程导致静电放电后的过滤效率测试，发现熔喷布会损失很大的保护效率。

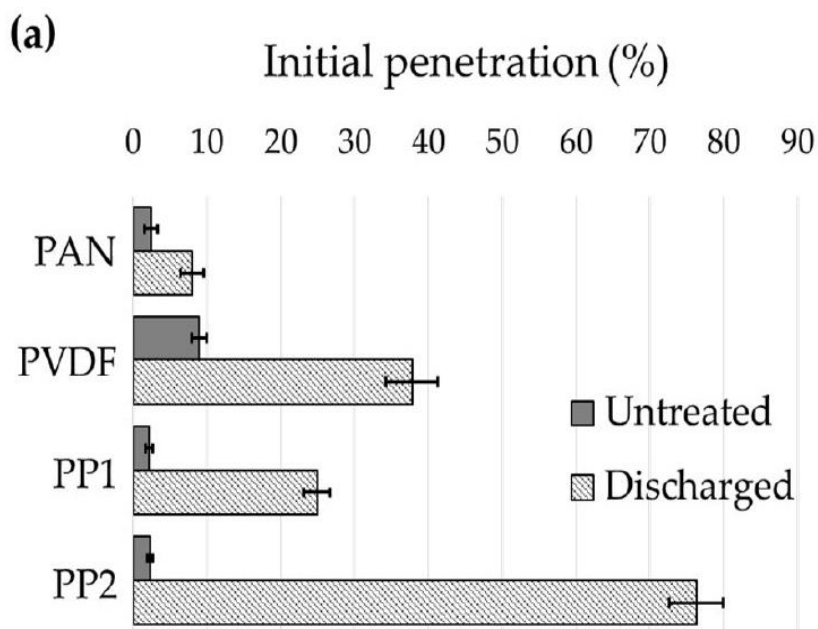
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This graph above shows an example of what conditions the masks will face inside the container. The humidity and temperature levels will directly affect the mask integrity of the protection efficiency. Every container takes about 1 month for traveling. By the time the mask reaches the consumer, the electrostatic force has been heavily discharged.

以上图表是口罩在货柜内所面对的温差与湿度的变化。温差和湿度会对熔喷布过滤效率造成严重影响。当口罩经历近一个月的运输仓存过程后，过滤效率会大为衰减。



PP1 is a polypropylene homopolymer, which is purified and more expensive material for meltblown. PP2 is a propylene-ethylene copolymer, which is impurified and cheaper material for meltblown. Both are the major ingredients for meltblown. In the graph above, you can see how the electrostatic force is radically discharged. The World Health Organization (WHO) conducted a study and found that major material of meltblown for 3M masks only achieved 75% protection efficiency. As 3M mask uses PP1, the case study matches with the graph data as shown.

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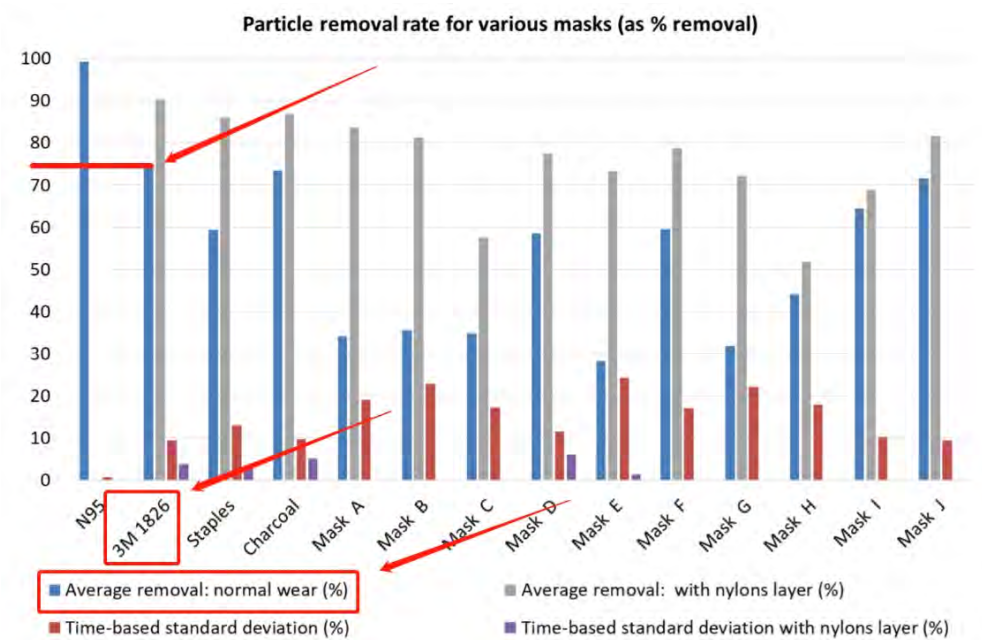
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PP1 是聚丙烯均聚物，是质量较为稳定的熔喷布原材料。PP2 为丙烯-乙烯共聚物，是次一等的熔喷布原材料。以上图表为韩国首尔大学对比熔喷布于静电放走前后，过滤效果的变化。世界卫生组织亦测试了 3M 口罩的平均过滤率，发现只有 75%。

Northeastern University, Boston discovered, even top-grade mask like 3M, their filtration efficiency is just around 75%.

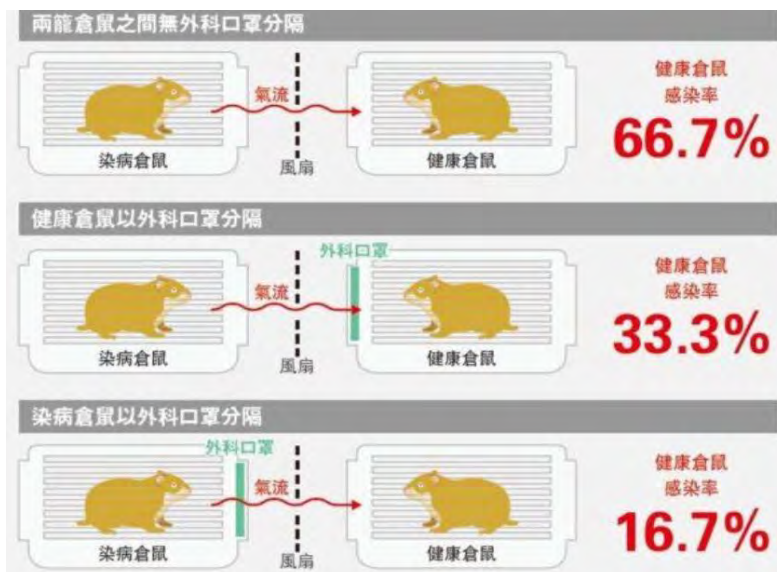
美国波士顿东北大学，亦测试了 3M 口罩，发现过滤率只有 75%。



The University of Hong Kong discovered, meltblown mask will only reduce infection rate of COVID-19 between hamsters to 66.6% / 83.3%, but not claimed 99%.

香港大学研究发现，熔喷布口罩对新冠病毒只有 66.6% / 83.3% 过滤效率，并非现时口罩包装上声称的 99%。

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Without Mask Protection:
66.7% Hamsters Infected

Mask on Health Hamster:
33.3% Hamster Infected

Mask on Infected Hamster:
16.7% Hamster Infected

Now Belgium got almost 1/3 of healthcare workers infected, and United States got over 570,000 healthcare workers infected. Those healthcare workers wear the best PPE in the world, above findings are the possible contributor on high infection rate among healthcare workers in western countries.

现时比利时有将近 3 份 1 的医护人员受新冠病毒感染，美国有超过 57 万医护人员受感染，他们均配戴最好的防护装备。经以上研究所发现的静电散失问题，是极有可能导致西方医护人员高致病率的原因。

Loophole of Current Testing Method

现时检测标准的漏洞

Testing method of ASTM and EN mainly focus on Particulate Filtration Efficiency (PFE), Physical properties of particulate vary to COVID-19. Particulate is neutral charged, they can be induced and arrested under electrostatic force. While COVID-19 is strong negative charged, negative charged electrostatic force will repel instead of arresting COVID-19.

现时美国 ASTM 和欧盟 EN 标准均将重点放于颗粒过滤效率 (PFE)，用于测试的颗粒为中极性，静电感应能很有效拦截中极性颗粒，但新冠病毒为负极性，负极性的静电会排斥新冠病毒，并非拦截新冠病毒。

Repealing is dangerous in air filtration theory, as it may bounce between fabric base, and induce unpredictable physical motion.

排斥于空气过滤中是危险的，因为他们会于纤维基底间弹跳，导致新冠病毒不可预期的物理运动。

Current testing methods do not take account to the effect of head motion during wearing, and electrostatic discharge during transportation and storage.

现时的检测方法更没有将头部于使用口罩时的摇晃及因运输过程所造成的静电流失，纳入计算之内。

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We need a more accurate testing method to accurately simulate the infection of COVID-19, and we design the true protection gear according to this new standard.

我们需要一个更加准确仿真新冠病毒传播方式的检测方法，并以此去设计真正能保护人类的个人防护用品。

A New Approach

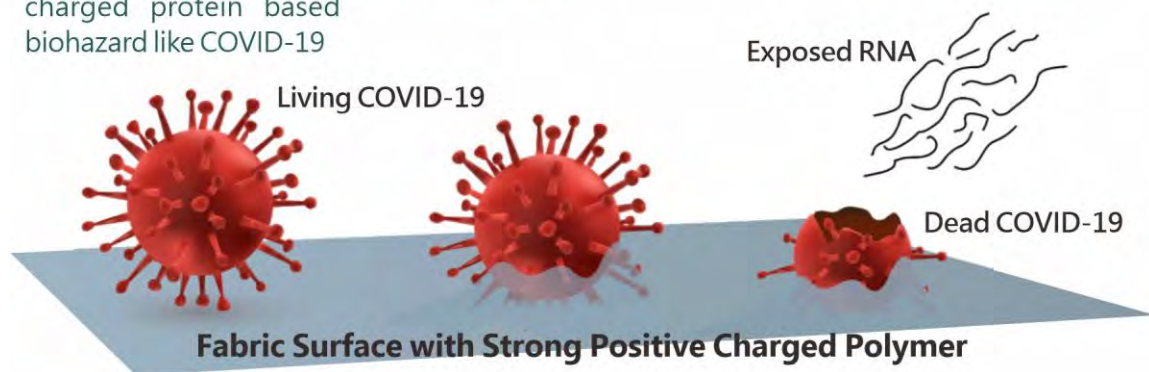
新方法

Technical Path

1. Strong positive charged polymer attract negative charged protein based biohazard like COVID-19

2. Polymer arrest biohazard like COVID-19

3. Polymer tear off envelope of biohazard like COVID-19



1. 纤维基底表面的强正极聚合物会吸附带负极的蛋白质细菌病毒，例如新冠病毒
2. 强正极会拦截细菌病毒
3. 强正极会撕破细菌病毒表面的包膜，从而杀死细菌病毒

To protect the US and Europe, a new approach different from electrostatic force was needed. This new approach needed to be cost efficient and have scalable rapid production. It has to be stable - able to survive extreme conditions without sacrificing its protective efficacy and remain safe for continual human consumption.

为有效保护西方国家，我们必须寻找一种新方法，不再依赖静电去拦截新冠病毒，而这种方法必须能有成本优势及大规模量产。过滤效率必须稳定，并且能抵御极端环境变化。

In 2013, the New York State Department of Health discovered spike proteins over coronavirus resulting in a strong negative charge. With the strands of COVID-19 in September 2020 already different from COVID-19 on December 2019, the virus now contains 10 times more negatively charged spike protein, and which in fact makes the virus stronger and more difficult to stop. If COVID-19 acted like SARS in 2003, the virus outbreak should have been stopped in June 2020.

于 2013 年，纽约州卫生部发现冠状病毒表面的刺突蛋白为强负极性。现时第七代新冠病毒的变种已与第一代有所不同，第七代拥有比第一代多 10 倍的刺突蛋白，换言之第七代比第一代具有更强的负极性。假若新冠病毒的物理特性是与 2003 年非典型肺炎相类似，新冠病毒早就能像非典型肺炎一样透过口罩灭绝。

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So, what is different about COVID-19? As negatively charged, COVID-19 is inarguably much stronger than SARS. With a stronger negative charge, the greater affinity to ACE-2 receptor infection rate is much higher than other coronaviruses, similar to SARS. So how do we kill it? The best way to arrest and kill, would be a strong positive charge. The solution would be to maintain a stable positive charge that can withstand all types of deteriorating conditions brought on with time and transport. The only way to maintain a stable positive charge is by a chemical nano structure and not an unstable electrostatic charge. Our positive charge chemical nano structure can only be destroyed at temperature in excess of 300°C, or exposure to strong acid. We have stress tested our product and put our fabric into 120°C ovens for 48 hours. The result is that our filtration efficiency remains the same at 99.99%. Our BFE and VFE will stay the same even during extreme atmospheric conditions in transport from China to the US or Europe.

因为新冠病毒对比起非典型肺炎有更强的负极性，对于人类 ACE-2 受体有更大的亲和力，所以对比于一般冠状病毒有更强的传播力。我们透过将纤维改性，我们于纤维间构建具有强正极的纳米化学结构，而该化学结构只在 300 度以上或面对强酸时所溶解，使之能于极端的运输环境下还能维持强正极性，再用该强正极性去拦截并杀灭越来越变得负极的新冠病毒。我们曾于 120 度环境下存放 48 小时，发现细菌过滤效率能维持 99.99%。

This is just the first issue of electrostatic discharge during transport solved by our team. The second issue happens as you wear a mask. Virus and bacteria will begin to grow after 4 hours of usage.

当我们解决了静电流失问题，下一个需要解决的是口罩二次感染问题。细菌和病毒能于在使用口罩 4 小时内滋生至危险程度。

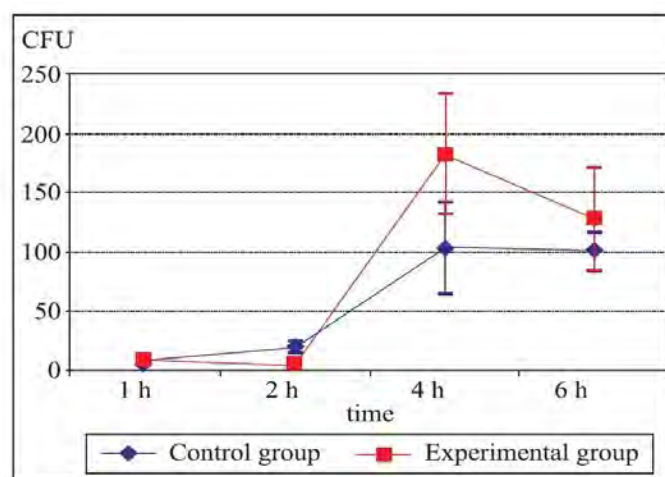


Figure 1. Counts of CFU on operation tables, after 1h, 2h, 4h and 6 h of exposition.

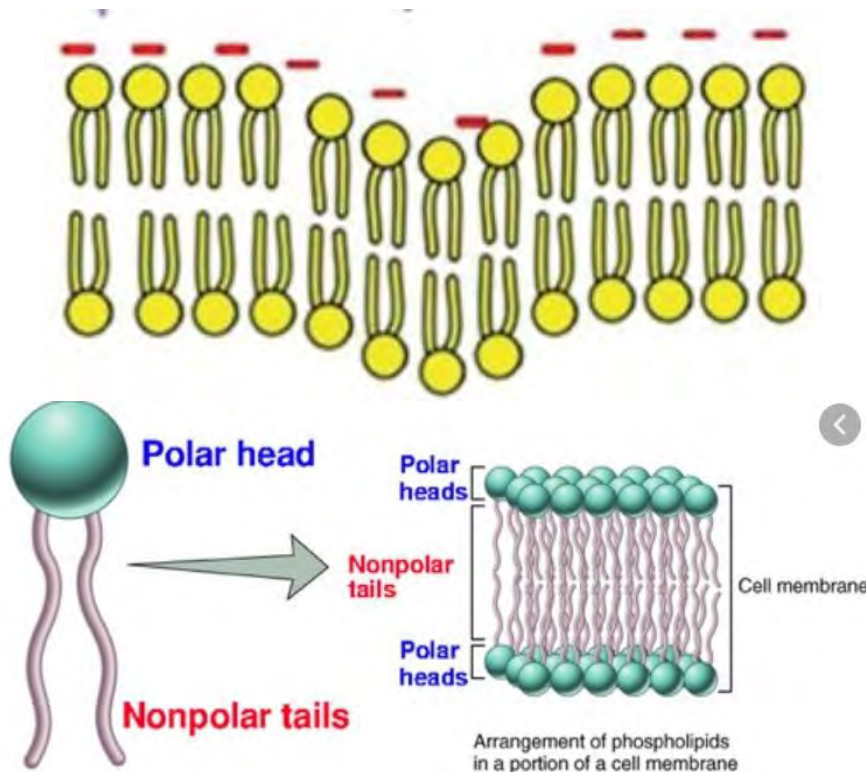
The growth rate of bacteria and virus can reach up to 180 times or more. As regular movement of the head occurs, the virus will airborne itself again. And in reality, as people temporarily take off and set down their mask to surfaces (e.g. to eat or drink), probably transference of COVID-19 is high. This is the reason why COVID-19 needs to be killed on mask.

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于配戴 4 小时后，细菌能滋长 180 倍。而使用时头部的摇晃，会使被拦截下来的细菌和病毒重新散发于空气中。一般人在使用口罩时会经常不经意接触到口罩表面，这就是为什么口罩需要有杀毒的功能。



Examined under an electron microscope, you will find that the envelope of COVID-19 is a very fragile protein chain, with a negatively charged polar head. Once they experience a positive charge, it will pull that polar head, and the chain will break. The envelope of the virus will tear off a hole and they will die.

新冠病毒的包膜是十分薄弱的磷脂双分子层，而他们有磷酸酯头部带有负极性，当他们感应到强正极，负极性的磷酸酯头部便会因正负相吸而产生位移，从而撕破包膜，杀死新冠病毒。

Therefore, a positive charge provides a double benefit here:

所以，强正极面对新冠病毒有双重好处：

1. Arresting 拦截
2. Killing 杀灭

The mutation trend of COVID-19 is having more spike proteins and grows stronger on negative charges. Electrostatic forces work less efficiently under this mutation trend. And our positive charge will work more effectively.

新冠病毒的变种方向是趋向于更多的刺突蛋白，其负极性越来越强。偏负极的熔喷布静电在这变种方向下会变得越来越低效，而强正极则会变得越来越高效。

Being able to create a stable product means being able to supply the world with a product that

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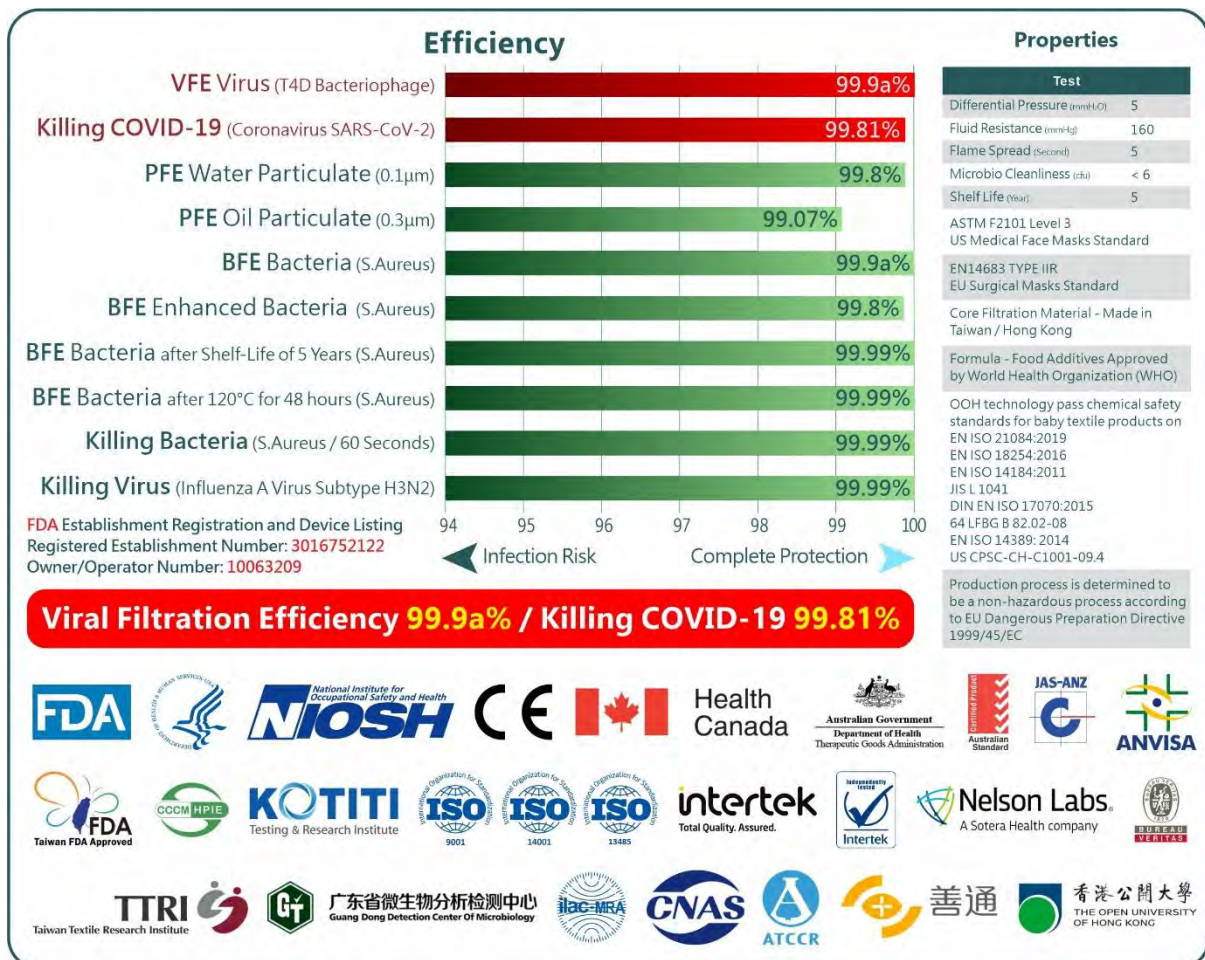


can effectively assist in keeping viruses and outbreaks at arrest. However, the realization that the product needs to be able to accomplish this safely is of our top concern. While some of our competition have also brought forth their own products in answer to the COVID-19 pandemic, our Curie product is the only one of its kind to claim health safety for human use. Our main ingredient is a WHO approved food additive. And unlike some of our competitors, we do not use metals in our formulation. We do not use Zinc, Silver, Titanium, or other toxic metals when breathed in could pose long term health risks.

第三个问题是安全性，现时市场上有不少的杀毒口罩，居安是众多的杀毒口罩中，最无毒无害。居安本身的化学结构主要成份为世界卫生组织 (WHO) 核准的食物添加剂。市面上的光触媒、暗触媒、银离子、锌离子、钛离子则为重金属纳米微粒，对人类有神经毒性及生殖毒性。

While some other competitors have contrived products that are safe, we have a product that is not only safe but also stable, cost effective, and scalable. Because we know that far beyond this COVID-19 pandemic, we have emanated a technical path for our product that is continually evolving into more products to fight the world of future bacteria and viruses.

在安全性、成本、产量平衡上，我们的技术路线是比新冠病毒的变种走得更远，在面对未来不知名的细菌和病毒，我们的技术路线将会是比其它竞争对手更为有效去防护人类。



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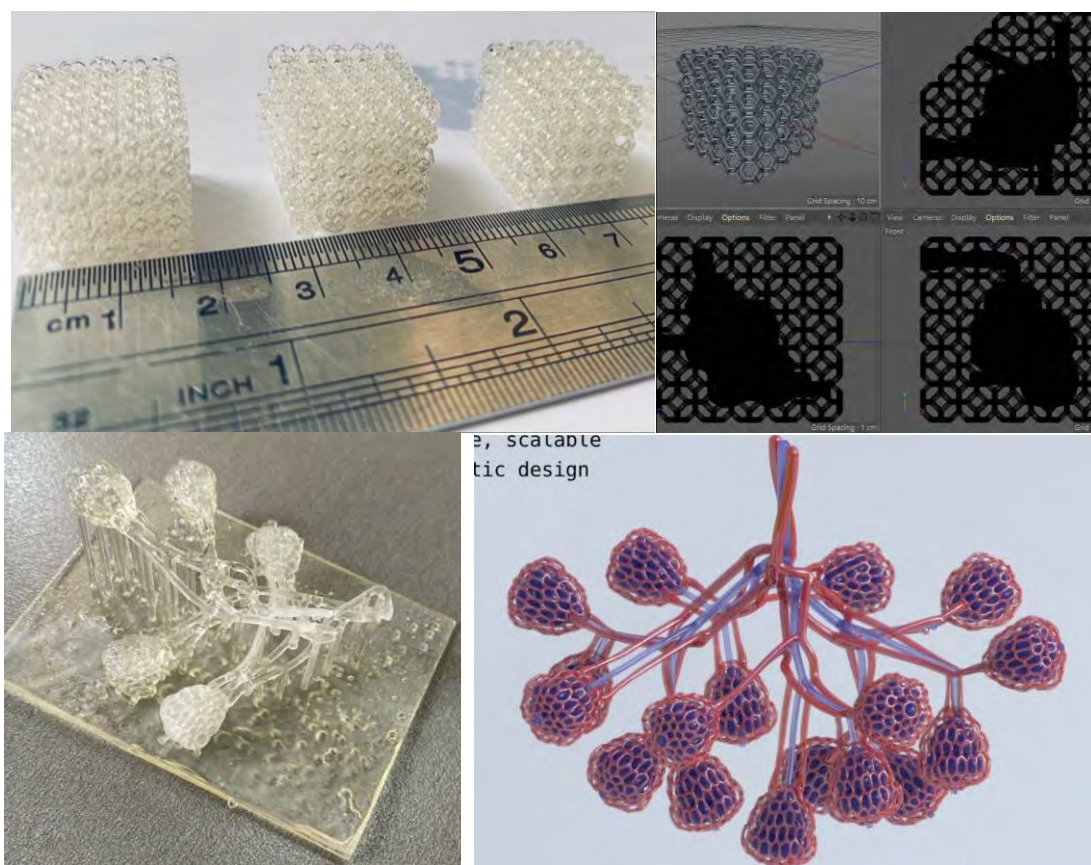


Curie Story

居安故事

Aldrin OR, graduated from Industrial Engineering of Hong Kong University of Science and Technology, and Rayman Gong, Postdoctoral Fellow of The Hong Kong Polytechnic University, were engaging on 3D printing of Micro Scaffolding of Human Tissue Reengineering by Continuous Liquid Interface Production (CLIP).

柯俊贤于香港科技大学毕业，专业于工业工程，龚剑亮为香港理工大学的博士后研究员。他们于疫情前研究利用连续液面生产 (CLIP) 立体打印用于人类组织工程的微型结构。



Aldrin and Rayman invented a composite to enhance the affinity between scaffolding and human cells, therefore human cells can grow along the designated shape as a functional human tissue.

柯俊贤及龚剑亮发明了能高效提高微型结构与人类细胞蛋白质亲和力的配方，并使人类细胞能咬合着微型结构沿着结构生长成有功能的人体组织。

When COVID-19 hit the world, the progress of this project is paused. Aldrin and Rayman thought the physical properties of protein based human cells, are similar with spike protein over COVID-19, therefore they tried to combine this composite with different fabric base with different manufacturing method, and it is the beginning of Curie.

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当新冠病毒横扫全球时，微型结构项目暂停，柯俊贤及龚剑亮想到新冠病毒的刺突蛋白物理特性，与人类细胞蛋白质相类近，所以便尝试用相同配方应用在不同的纤维基底上，并设计出量产方法，这就是居安的起始。

Frequently Asked Questions

常问问题

1. *Is there a protection level of the inlays, or other comparison which can be used, i.e. equal to N-95?*

For protection efficiency, I would like to raise one very important thing here. Full name of N95 is particulate respirator, it never mentioned they have ultrahigh efficiency on virus filtration. Testing method of N95 is blowing through NaCl on mask, and measuring how many NaCl penetrate the mask. NaCl is a completely different thing comparing with COVID-19. NaCl is neutral charge, it won't move at all. COVID-19 is in high negative charge, it will move, molecular motion of COVID-19 is very different from NaCl. If we want to arrest NaCl effectively, we will need electrostatic force to induce neutral charge particle and arrest them. If we want to arrest a strong negative charge, we need strong positive charge to arrest them. It is impossible to have 1 technical path to arrest everything effectively. If we need to do one job very good, we need to tailor make a technical path according to the physical properties of your target. We choose COVID-19 in this case.

In the University of Hong Kong, they conducted an experiment. In an enclosed area, they put a lot of boxes with a hole, and they use a very top quality Medicom mask to cover this hole. Inside the box, they put Syrian hamster inside it. They found even we put on a high-quality mask, infection rate of COVID-19 will only drop to 1/3, it never reach so-called 1% or 5%. In Belgium, healthcare workers wear N95, but 1/3 of healthcare workers are infected with COVID-19 there. This week, we are going to have discussion with Intertek and 3 professors on different professions, we all think current standard on mask got a loophole, we will come up with a better method to simulate transmission of COVID-19. If current standards work well, you will not see so many healthcare workers are infected.

We tested virus filtration efficiency (VFE) in Nelson Lab and Intertek, our filtration efficiency on virus is > 99.9%. We are confident that it is cheaper and better than N95, as we chose a better technical path than N95.

2. *50% more breathability compared to conventional masks of the same type, Is there a reference to this claim?*

If you need something got VFE 99.9a% and BFE 99.99%, and filtration efficiency will not drop in 5 years. Currently only Nanofiber can achieve it. Nanofiber rely on fabric density to arrest COVID-19, so it will be very stable, but the static pressure drop will become 2 to 3 times more than our filter material. If you have a chance to wear a mask with Nanofiber, you will experience hard to breathe.

Face Mask which Arrest and Kill COVID 19

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There is no mask made of Nanofiber successfully passing ASTM F2100 or EN14683, they fail it because of static pressure drop.

3. WHO approval or reference on non-toxicity

It is related to our formula. Now our patent is in 18 months confidential period, so you will not search anything related to our formula or production method in any public database yet.

But we are very willing to share it directly with key technical team of UN, we got some very strong literature support on hand, once they see it, they will know why we are so confident on technical path. We don't want to make profit based on a killing matter. We hope to save as much as people life in a very affordable cost for poor people in Africa and India and South America. We sincerely hope we can launch this technical path through the channel from United Nations.

4. Do you have air permeability specifications?

According to ASTM F2100 and EN14683, our delta P is between 20~30 Pa/cm²

5. Besides pointing out the competitors "meltblown fabric" deficiencies, we will be asked on describing the technical detail on your product which make it possible to have the advantage over it.

Meltblown:

- Electrostatic force will be discharged during long haul transportation, so you will see there are very high infection rate among healthcare workers in US / Europe, while infection rate of healthcare workers are very low in Far East

- Electrostatic force is negative charge, COVID-19 become very strong negative charge after mutation. We are now relying on an unstable negative charge to arrest a target with strong negative charge. Therefore we got a fail results from many clinical test, when we use actual COVID-19 to test the effectiveness on controlling transmission of COVID-19.

Curie filter:

- Mutation trend of COVID-19 is becoming stronger in negative charge, then we use positive charge

- Electrostatic force is unstable, then we build a stable nano chemical structure that can maintain strong positive charge even after we condition our filter under 120C for 48 hours

6. The material presents and positions itself as a new polymer nonwoven fabric, allegedly with 153 patents from different countries. Okay, maybe. But where it was before the discovery of COVID-

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19? We are now looking at patents, looking at technologies from the same direction, and we are not invisible either to this company or this "super material" . All Hong Kong companies can be checked in China, but we do not see any operating with such a trademark CURIE. The file you provided does not have any reference links published in scientific journals or research centers regarding the effectiveness and general existence of this material.

Our first experiment started at 2020/2/28.

Originally we are not working in the "COVID-19" direction, we are building nano scaffolding for human tissue reengineering via Continuous Liquid Interface Production (CLIP). We made a solvent that got super high affinity with protein, we treated the nano scaffolding with this solvent, so human cells can grow along the scaffolding structure easily.

After COVID-19 arrived, everything stopped, then we think virus, bacteria and COVID-19 are made up of protein, especially spike protein over COVID-19. All over the world lacked meltblown for mask making. Therefore we tried to dip this solvent with all different kinds of nonwoven fabric, from water repelling to water absorbing fabrics, then we vaporized Staphylococcus Aureus and sprayed over them, and we found no bacteria can penetrate it in some fabric composition + some solvent combination.

We made a testing sample with the best combination, and sent it to US Nelson Lab to conduct Viral Filtration Efficiency (VFE) with Bacteriophage T4D (0.3um) as per ASTM F2101 standard, after 45 days of waiting, US Nelson Lab sent us a report that no virus can pass through.

We sent a sample to Beijing to conduct the Killing COVID-19 test as per ISO18184, after 30 days of waiting, Beijing sent us a report that 99.81% of COVID-19 was killed in the test.

We sent a sample to Guangzhou to conduct the Killing H3N2 test as per ISO18184, after 30 days of waiting, Guangzhou sent us a report that 99.99% of H3N2 was killed in the test.

We sent a sample to The Open University of Hong Kong to conduct the Killing Staphylococcus Aureus test as per BS EN ISO20743 Transfer Method, The Open University of Hong Kong sent us a report that 99.99% was killed in 60 seconds.

We patented in HK and US, and we put them in an 18 months confidential period. During the first 18 months, if someone copies me, I can jump out and sue them. After 18 months, the world will know how I do it, so I can have 18 months to prepare money for a patent lawsuit against China and India. It is a strategy.

We discovered it accidentally, then we figured out a technical path via numerous AB testing, we patented the whole technical path with a set of chemicals and fabric compositions that can arrest and kill virus and bacteria via strong polycationic charge in air filtration. It is a patent set, and it is a totally new approach for human beings, we are the first one in the world to discover it.

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7. Speaking about the virus itself, you say that it has mutated, and its multiple number of spikes has increased. The such statement can be nominated for the Nobel Prize, at least. Frankly speaking, the structure of the virus is composed of proteins, where in the corona the part that first comes into contact is called the S-protein, and how they mutated there, we still don't know. But we know for sure that getting a sample of a virus for research is tantamount to a nuclear bomb in a laboratory in our time.

In 2013, New York State Department of Health already discovered S-Protein over coronavirus is strong negative charged.

In 2020/8-9, scientists discovered mutation of COVID-19 got 10 times more S-Protein as infection rate spiked.

You got something with a strong negative charge, and it got 10 times more, as a result, mutation of COVID-19 became much stronger in negative charge. It is a logical induction.

We rely on negative charge electrostatic force to arrest a strong negative charge virus, so it is failing, and you can see infection rates among healthcare workers. Statistics prove this induction already.

In the University of Hong Kong, they tested and verified that, even if you put on a meltblown mask, you still got 1/3 of chance to get infected by COVID-19.

Everything I mentioned is verified, once you connect those dots, you will know why masks can't stop COVID-19 like SARS, and once you know why, you will know the solution.

8. Reg. chart table PP1 PP2, and so below if you read, they are supposedly used in masks 3M N95. And at the beginning it is indicated that the material can be washed 60-80 times. Based on the table, they say that the material is PP2. But as a person who works with masks with respirators of the N95 class, I will say that PP2 and PP1 are fully deciphered as FFP1 and FFP2, and in fact speaking it is a meltblown which is made on oil mist, and not on something specific that can be machine washed. as mentioned in the article. FFP1 and FFP2 are not used in conventional medical masks (there the price will be 5-7 times more expensive for such a mask).

You get it wrong.

PP1 is linear polypropylene to make meltblown.

PP2 is copolymer polypropylene to make meltblown.

PP1 is a major ingredient to make good meltblown like 3M 1860, and it showed the efficiency of PP1 meltblown will drop from 99% to 75%, and Boston Northeastern University verified that 3M they received only got 75% left.

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PP2 is so called rubbish dump sales masks, they are so cheap and everyone uses it, and everyone gets infected and now you know why.

Electrostatic force will be discharged when they experience hot temperature and high humidity. Even if you use a plastic bag to seal it, it is still experiencing a hot temperature inside the container. Container itself can reach 58C, and the mask needs to stay inside the container for 30 days if I need to send it over Pacific Ocean.

FFP1 / FFP2 / FFP3 is mask standard according to EN149, it is nothing related to PP1 and PP2.

9. You claim it retains and kills germs even after washing (up to 80 times). - the article indicates that the product has a deadly positive charge for the microbe. Okay, then the electret is mixed in. I told you about electrets which are, and how long they live. When in contact with water, the electret (which is doesn't matter if it is organic or not organic) that is in the composition of the surface of the tissue is simply disassociated, therefore there will be no filtration and microbe capture effects at all. (And who will wash the mask 80 times?)

You can maintain a strong positive charge with a strong polycatic polymer structure, instead of relying on an unstable physical phenomenon. Our positive charge is 3 times stronger than Chitosan, it is the magic of Curie.

You can't use water to wash out strong polycatic properties for a chemical structure.

I am so happy that finally I got someone to understand the meaning of it from a technical angle, I am very happy to set up a WhatsApp group between you, Eric and me, so we can share our technical point of view deeply to win the war on COVID-19.

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