

Project introduction



[HPQ.IO](https://hpg.io)

**The Number One Industrial Commodity-Backed
ICO in Asia '2018**

High Purity Quartz Production

Project description

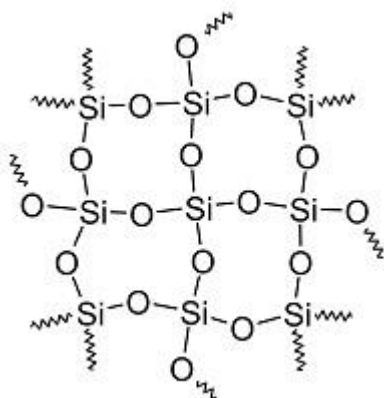
Industrial production of High Purity Quartz using low cost & environmentally friendly production technology

The reason

To meet existing buyers' demand, cover a shortage (deficit) in the market, introduce a better quality and lower cost product to the market, and implement a novel environmentally friendly technology, to get profit from a large difference between our production cost and the sales price of the product in the market.

Product

Ultra High Purity Quartz (HPQ, silicon dioxide, silica, SiO₂)
Purity: 5N 99.999%+



High purity quartz is the basic material for electronic, optical, lighting and solar (PV) industries.

Used in solar elements, semiconductors, optical fibres, lenses, crucibles, telecommunications, etc. It is a necessary element for the production of any modern gadget – for example, mobile phones.



Project's main conditions

Description of the market

- High deficit of ultra high purity product and increasing demand;
- High prices and shortage / unstable supply of real 5N+ purity;
- Users have to purchase a product of lower purity than they would like.

The majority of HPQ consumers are based in the Asia Pacific (APAC) region - Korea, Japan and China. The APAC region collectively accounts for around 50% of global HPQ consumption. North America is the second largest market in terms of HPQ consumption.

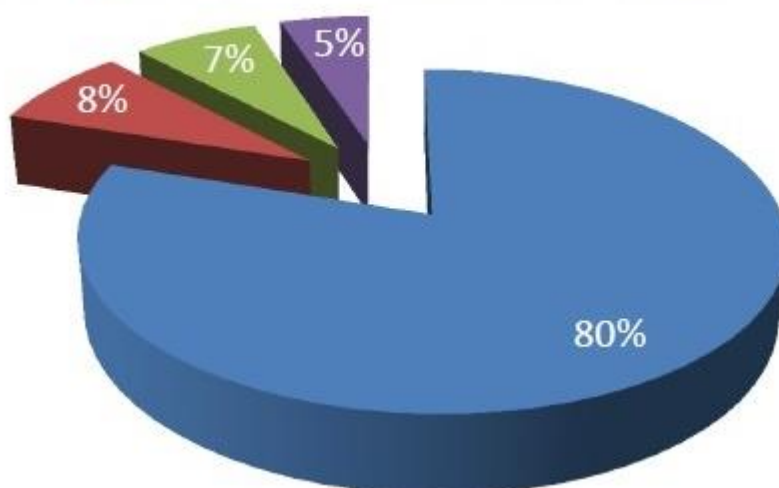
Main manufacturers (main suppliers of ~5N purity quartz)

- Unimin
- The Quartz Corp
- Russian Quartz (Rusnano/Sumitomo)

Among the mentioned suppliers, only Unimin offers a stable product of over 5N purity (their highest purity product is "Iota 8" – 99.9992%) but for the majority of buyers, it is nearly impossible to obtain a stable supply at a reasonable price.

Market share of the main HPQ suppliers

■ Unimin, USA ■ The Quartz Corp. Norway-USA ■ China ■ Others



Market prices and production cost

Unlike other industrial mineral markets, there is limited competition in the global HPQ industry with two producers handling more than 80% of global production. This means that prices remain fairly steady.

Actual market prices for high purity quartz and our production cost:

GRADE	Market prices	Our production cost	Comments
IOTA STD	USD 4.5-5.5/KG	<USD1.50/kg	Purity about 99.995%
IOTA 4	USD 9-11/KG	<USD2.00/kg	Purity about 99.997%
IOTA 6	USD 15-17/KG	<USD2.00/kg	Purity about 99.998%
IOTA 8	USD15-25/KG	<USD2.00/kg	Purity about 99.9992%

More information on grades - <http://www.iotaquartz.com/product-range.cfm>

Future prospects for HPQ market

The semiconductor segment accounted for over 36% of sales volume in the HPQ market in 2016, but going forward, the solar industry is expected to gain a larger share of the market.

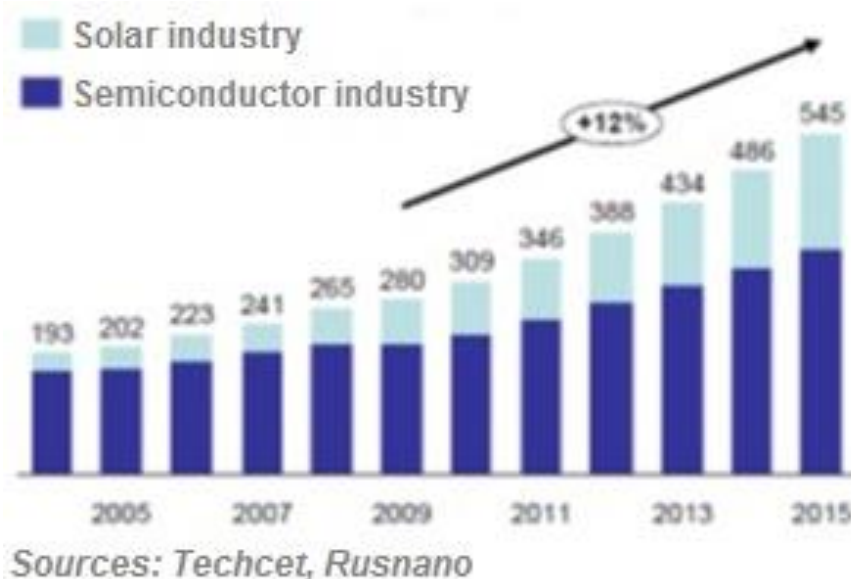
Solar industry

- The total amount of solar power added worldwide rose by approximately 50% in 2016, and is expected to continue growing. Global solar power capacity is now up at 350W, up from 50GW in 2010
- EU countries have agreed on a new 2030 Framework for climate and energy, including EU-wide targets of at least a 27% share of renewable energy consumption.
- Japan’s Ministry of Economy, Trade and Industry has fixed the country’s renewable energy target at 22–24% by 2030. During 2016, all renewable energy sources together represented 14.2% of production. Solar photovoltaics (PV) share of electricity production in Japan rose from only 2.7% in 2015 to 4.3% in 2016
- China’s total solar PV capacity now exceeds the government’s 2020 goal of 105GW, set in 2016. By 2020, China is aiming to build at least 54.5GW of large-scale solar projects.
- India has set itself a target of 100 GW of solar power by 2022
- Arab countries (UAE, Kuwait) are developing their own solar energy projects

Microelectronics

- Stable growth 3-5% yearly. About half of silicon wafers production (45%) is in Japan and Taiwan
- According to Research.Techart, based on EPIA data in 2015, demand for polysilicon reached 37 – 58 thousand ton / year.

Crucibles market (USD million)



Our team

We have a very experienced and trustworthy team to make this project a global success:

Chemical scientists with 30-40 years overall working experience and patents in this field; over 10 years in HPQ technology development

Industrial equipment engineers who have been able to scale the technology from the lab to a commercial production line;

Technology and equipment consultant with over 15 years in the field;

Experienced project manager, business development manager, and financial analyst;

Shift leaders;

We also have an experienced lawyer who will double check every document and take care of compliance together with basic services provided by the Industrial Park.

Other dedicated people who will make this project a success.

Our team members are ready to start immediately.

In addition, Phuc Long Industrial Park is supporting us with recruitment for further staff– they have collaborated with the main local universities and the government labor department.

More information about our team can be found at: <https://hpg.io>

Our technology

Our technology is a novel approach to produce high purity and ultra-pure quartz. We have thoroughly tested this technology over the past few years, and are very excited by the results.

Instead of the classic scheme of quartz purifying (taking out the impurities) we “take” only pure quartz out of raw material which can be quartz sand of any purity.

The purity of the product in our technology is limited only by the quality of the production line and the purity of the production process – because we “leave” all the impurities and “take” only what we need – SiO₂.

Most reagents are recycled and used in production again and again.

As a result we obtain a high purity quartz – so called “solar grade” quartz – at a low cost.

Advantages of our technology

- No requirement for pre-mined quartz – we use sand of nearly any quality as the raw material => no need for mines and expensive materials
- Purity is not limited by technology – only limited by the production environment, so we can produce a higher purity product at the same cost.
- No need for very high temperatures in the production process
- No need for hazardous chemicals => no hazardous waste
- Most reagents are recycled and used again and again

Readiness of the project

The technology has been completely checked at the pilot production line (2012-2013) and additionally tested using factory-made equipment (2017). We are now ready for industrial production (scaling).

There is no need for any additional research, tests, etc. We are ready to begin.

Pilot line (mini-production line)



Ready product – high purity quartz

We have successfully obtained 5N quartz from 86% mortar sand! The result was limited only by the equipment quality (process purity).



Excerpts from laboratory analysis (from low quality, literally “hand-made” pilot line without “clean room”):

시 험 분 석

시료명	시험분석항목	시험분석결과	시험분석방법	비고
분말-1	Al (mg/kg)	2.0	기기분석	
	Zr (mg/kg)	0.24		
	Ti (mg/kg)	<0.01		
	Mn (mg/kg)	0.35		
	Rh (mg/kg)	<0.01		
	Ca (mg/kg)	9.6		
	Fe (mg/kg)	0.7		
	K (mg/kg)	0.59		
	SiO ₂ (wt %)	99.99725		

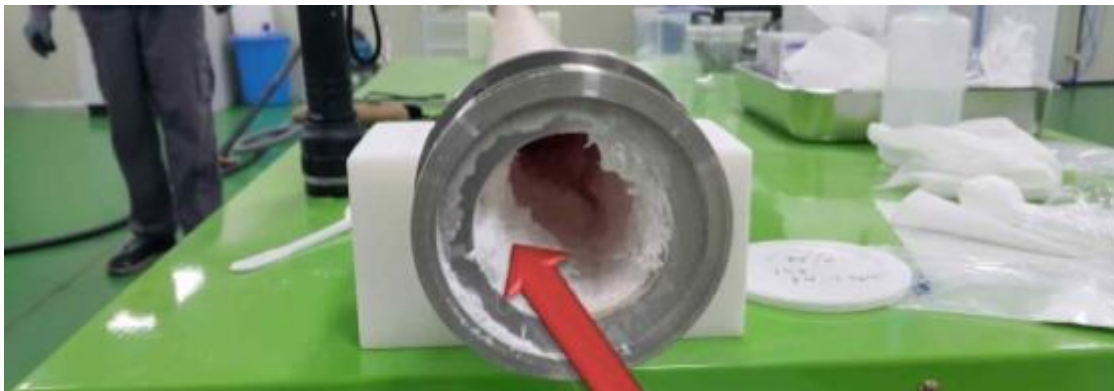
끝.

The purity of the product is limited only by the purity of the production process and inner purity of all the equipment.

So all we need now is to start the same line but with higher capacity, professional equipment and a ‘clean room’.

UPDATED RESULTS FROM 2017

In 2017, we had a unique opportunity to run our technology process using standard factory-made equipment in a ‘clean room’.



We obtained 99.9997% purity per 64 (!!!) elements test. The standard test used in the HPQ industry covers 15 elements and shows much higher purity because less impurities are summarized.

We are hopeful that we will obtain an even better result once we use a proper coating for the chemical extruder’s inner surface. In the process above, we used off-the-shelf equipment because that was what was provided to us. For the factory we will purchase custom-made equipment with needed coatings.

Raw materials

Raw material (the source of quartz) can be a quartz sand of nearly any quality (even mortar sand can be used). We have previously tested our production process using a sand with quartz content less than 90%.

We have established good relationships with local suppliers of quartz materials.

Waste

The production process has nearly no waste.

With quartz content in sand (Vietnam) from 98-99% and higher, safe solid waste is not more than 1-2%.

Chemical reagents and water are pretty much totally recyclable.

Our initial plans

The 1st production line for IOTA 4+ grade quartz with capacity 500tpa to start commercial production, deliveries and further expansion.

If we raise more than our soft cap we will start with higher capacity and probably add IOTA STD production line to meet other buyers' demand.

Our current confirmed demand is over 10,000 tons per year.

The place: Ho Chi Minh City, Vietnam

Sales

We have confirmed interest and intention to purchase from the world's leading buyers, such as:

- Heraeus (Germany)
- SUMCO (Japan)
- Storchem (Canada)
- Other companies worldwide

The average volume required by one buyer is higher than our initial production capacity so we have a lot of space to grow.

We need to increase production capacity at least 20 times just to meet existing demand from the buyers who have already connected with us.

There are still many potential buyers who have not yet contacted us. We know them and plan to work with them after we start the production process.

Our products are in demand in South Korea, China, Taiwan, USA, etc.

The location

The location of the factory: Phuc Long Industrial Park (Ho Chi Minh, Vietnam)

We have contacted and visited most industrial parks around Southern and Central Vietnam and found Phuc Long Industrial Park as the most suitable place for our project.

We have received good prices, conditions, full “turn-key” support, investment incentives such as tax holidays for 2 years, 50% tax for the next 4 years, low basic corporation tax (17%), good location, on-site customs, etc.

More information on Industrial Park here - <https://hpg.io/industrial-park-for-hpg-factory/>

Why Vietnam

- Vietnam is one of the leading sources for quartz sand in the world. Vietnamese quartz sand is an ideal raw material for our project
- Good support for foreign investors, especially for manufacturers of export products
- Special conditions for manufacturers of export products – tax holidays, low social taxes, zero import taxes for equipment and raw materials, ease of doing the project in any of numerous industrial parks, full legal support
- Well-developed infrastructure
- Low production cost
- Convenient location for transportation
- High political stability and level of protection for foreign investments.
- Project’s founders have considerable experience working and living in Vietnam, good business connections and understanding of local business habits and rules

Why Singapore for holding company (HC)

- High political stability and extremely high protection for shareholders
- Easiness of any legal activities – incorporation, shareholders’ relations, transfer of shares, contracts, etc.
- Ranked number 2 in the World Bank’s Ease of Doing Business 2018 ranking
- Ideal place for further expansion in South-East Asia and worldwide
- ICO-friendly country

Needed investment amount

Minimum amount to start with a 500tpa production line (soft cap): USD1,650,000

This amount will allow us to create a 500tpa production line with basic equipment:

- Industrial area & workshop
- Clean room
- Production equipment
- Installation works
- Raw materials & reagents
- Start of the commercial production
- Salaries & other direct expenses
- Laboratory

If we raise more, we will increase capacity accordingly. We can safely increase to 10,000tpa just to meet existing buyers' demand.

Project timeline

From the end of ICO:

Months 1-2 - paperwork, approvals, order production equipment

Months 2-6 – preparatory works, clean room, delivery of production equipment

Month 7 – installation works and start of production

Month 8 – start of buyback process

Month 13 – start of redemption process

Further development

Summary

We have everything ready – the technology, the long-term plan and vision, business plan for the next five years, financial model, the location, the team, commitment from buyers (sales) – all we need now is financing to start the first commercial production line.

Further plans

1. Increasing the sales and production capacity.
2. Minimizing the production expenses and cost.
3. Obtaining a higher product purity (we have some ideas).
4. Production of crucibles using own quartz.
5. Production of SiC (also required by our buyers).
6. R&D on pure silicon production.

Additional comments

We have been contacted by several well-known companies working with HPQ with inquiries for JV, technology licensing, dealership, strategic partnerships, etc.

We also have offers for a JV from Vietnamese government-backed companies and private businesses.

Furthermore, some investors are ready to finance our project in exchange for company shares.

However, we have decided to raise the needed amount via ICO in order to give away less equity and keep control of the company.

Financials

By achieving a soft cap of USD1.65m, we will be able to start with a 500 tpa (ton per year) IOTA 4+ grade HPQ production line.

Maximum production cost is USD1.90/kg (for 500tpa line, and lower if we increase capacity).

Market price of IOTA 4 grade HPQ is USD9-11/kg. This is the minimum purity of the product we obtain in the worst scenario.

We used a discounted sales price for our business plan of USD7/kg which is very conservative for such a product. We prefer a cautious approach.

EXPENSES	
<i>Industrial park (land, management, etc.)</i>	62,000.00
<i>Salaries with taxes</i>	214,020.00
<i>Facilities (electricity, water, waste treatment, etc.)</i>	463,780.00
<i>Raw materials & reagents</i>	112,000.00
<i>Other expenses</i>	96,000.00
Total expenses	947,800.00
<i>Cost of 1 kg (FYI)</i>	1.8956
SALES	
<i>IOTA-4 500MT x USD7,000</i>	3,500,000.00
Total sales	3,500,000.00
FINANCIAL RESULT	
<i>Balance</i>	2,552,200.00
<i>Corporate tax 17%</i>	433874.00
<i>VAT 0% (export product)</i>	0.00
Balance after tax	2,118,326.00

Amounts in USD

Please contact us if you have more questions about the financials.

Our offer for investors

We will be issuing commodity-backed “HPQ” tokens worth 1 kg of IOTA STD or 0.5 kg of IOTA-4 HPQ with a guaranteed buyback according to the pre-agreed schedule.

The prices during the sales period (for 1 “HPQ” token):

<i>Day of sales</i>	<i>Selling price, USD</i>
Pre-ICO	2.00 + 5-15% free bonus tokens
ICO day 1	2.00
ICO day 2-7	2.20
ICO day 8-15	2.30
ICO day 16-25	2.40
ICO day 25~	2.50

The company reserves the right to sell tokens after the announced sales period on mutual agreement without any promise to do this.

Ways to redeem tokens:

1. Buyback

Buyback schedule and prices for 1 “HPQ” token:

From the end of token sale campaign:

<i>PERIOD</i>	<i>MIN. BUYBACK AMOUNT, % OF TOTAL TOKEN SALES AMOUNT</i>	<i>BUYBACK PRICE, USD</i>
MONTH 8	10%	3.00
MONTH 9	10%	3.10
MONTH 10	10%	3.20
MONTH 11	10%	3.30
MONTH 12	10%	3.40
MONTH 13	10%	3.50
MONTH 14	10%	3.60
MONTH 15	10%	3.70
MONTH 16	10%	3.80
MONTH 17	10%	3.90
FROM MONTH 18	10%	4.00

2. Exchange token for physical product

Tokens can also be exchanged for High Purity Quartz:

1 “HPQ” token = 1 kg IOTA-STD = 0.5 kg IOTA-4 (EXW)

Exchange is subject to availability and production plan.

Other terms and matters

Please visit <https://hpg.io> for updates, or contact us if you have any other offers, special requests or inquiries.

Reasons to join HPQ ICO

- Real industrial project backed by real assets
- Everything is ready to start - no need for any additional tests, research, etc.
- We have thoroughly tested our technology over the past few years
- You can watch the development – we will provide regular reports with photos/videos; we also plan to install a web camera
- Strong team ready to start immediately
- You can visit our office and meet us at any time
- Good returns for backers
- You can plan your profits because they are fixed in USD and do not depend on the volatility of cryptocurrencies
- We have exciting long-term plans – be one of the first investors now
- Special terms and good profit for early investors
- If you use or trade HPQ, you can obtain it at a very good price by buying our tokens
- We use a green, environmentally friendly technology instead of the classic hazardous one
- The right time and the right place for this project

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YouTube - https://www.youtube.com/channel/UCs6esUFOUjmF9W5SIM_TIYQ

Slack – <https://hpgio.slack.com/> invitation link -

https://join.slack.com/t/hpgio/shared_invite/enQtMzM2NzA2MzY1LWVhODJiYWMyZTM1NTUxZjQ2Zjk2NTIwNWlyNzdmMDM1OGZlOGQzOTQwNzAyNjA0ODNiZjk1YzNjOGMyZTM2YjQ

Bitcointalk - <https://bitcointalk.org/index.php?topic=3330710.0>