



Investments in innovative biotoner manufacturing,  
made upon new technological principles.

# WHITEPAPER



## Annotation

We present unique blockchain-based option directed towards manufacturing biotoner. TonerCoin – a project, built on crowdfunding model – TGE, participants play an active role in expansion of production and are owners of tokens.

Toner is a powder mixture used in laser printers and photocopiers to form the printed text and images on the paper.

Big amounts of toner are used annually. Median price of toner varies between type and manufacturer and is approximately 6 to 20 dollars/kg. Every year consumables market grows for 15-20 percent average.

Having analysed situation, we've come up to a decision that new, more ecological and cost-effective technology is needed.

### **Strategic goals of project:**

- Strengthening new types of economical relations in manufacturing and product transportation, based on distributed database.
- Optimisation of manufacturing process and final cost.

**TonerCoin** – was developed by certified specialists of toner manufacturing, who have been working with copiers for over 11 years. That allows cutting costs of manufacturing toner for 50% by using recycled materials and reducing expenses of many areas. (every user)

TonerCoin token will be based on Ethereum.

## Terminology

**Blockchain** (или цепочка блоков) — list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data.

**Token** — a digital asset, used to show balance. Tokens are registered in blockchain data base. In other words that is a digital stock in blockchain.

**Issuer** — a legal entity that develops, registers and sells securities for the purpose of financing its operations.

**Money creation** — the process by which the money supply of a country, or of an economic or monetary region, is increased. In our case it can be limited or unlimited.

**Investor** — a person that allocates capital with the expectation of a future financial return.

**ICO** (initial coin offering) - a means of crowdfunding centered around cryptocurrency, which can be a source of capital for startup companies. In an ICO, a quantity of the crowd-funded cryptocurrency is sold to investors in the form of "tokens", in exchange for legal tender.

**Financial transaction** — an agreement, or communication, carried out between a buyer and a seller to exchange an asset for payment

**Smart Contract** — mechanism, that includes digital assets. Parties, that put assets in a contract, automatically receive them distributed by a special formula. Put differently, this is a digital contract in blockchain.

**Biotoner** — a powder mixture used in laser printers and photocopiers to form the printed text and images on the paper, in general through a toner cartridge. Mostly granulated plastic, using organic components there are other mixtures containing polypropylene, fumed silica, and various minerals for triboelectrification.

## Project description

Nowadays no organization can function without a printing machinery.

According to statistics, every year more than 3 trillion copies are printed on paper, and every 3.5 years that amount doubles.

Approximate market size of toner in **2020** will be 4.5 billion dollars, or about 400 kilotonnes.

It is expected, that printing market growth in packing area will be defining factor, stimulating toner market in that period. Shifting preferences from ink to toners, as well as growing commercial printing market, are other key factors, that will boost demand for next years.

We work with toners and office equipment since **2006**. We often had question how toner is made. There were almost no information in that field.

In **2015** we have decided to find specialists that will advise us on toner manufacturing. When we found them, we have been presented with classical ways of toner manufacturing. Having calculated the costs, it became clear, that capital needed for creating a factory, is very high.

In **2016** certified head technology specialist Sergey Bovin advised us on ways of manufacturing non-magnetic toner based on innovative principles of manufacturing. About 2 years were needed to go from concept to ready-to-implement technology.

Now there are two ways of toner manufacturing: mechanical and chemical.

Our technology is a compromise between chemical and mechanical ways. It contains all the pros and almost no cons. High efficiency with low energy consumption.

By using our technology the price of product on the market in the following years will be significantly lower. That allows us to be ahead of our competitors.

**Ecological manufacturing. Uniqueness of technology TonerCoin:**

- Low energy consumption;
- Efficient source base;
- Ready-to-recycle materials and sucrose as a component of final product;
- Opening of manufactory in anywhere in the world;
- Scalability for every need.

## Pros and cons of classical methods of toner manufacturing

### **Classical method of toner manufacturing (conventional and pulverized)**

There are 4 stages of manufacturing:

1. Main components (polymer, CCA, pigment, magnetite, modifiers) mechanically mixed together.
2. Produced mixture put into extruder, where hard fractions, with even distributed components, are formed by an impact of high temperature and pressure.
3. Hard fractions then get rough pre-milled and put into jet mill where they turned into dust-like substance.
4. Toner is mixed with additional components, sieved and packed.

There are variations of this process. Some manufacturers can achieve toner particles form close to ideal and with little diversity in size between particles. Toners like that can successfully compete with chemically produced ones.

### **Advantages of mechanical method:**

- Using of mass-produced machinery in manufacturing;
- High field of variety in choosing machinery at planning and modernizing manufacturing.
- High durability of the machinery.

### **Disadvantages of mechanical method:**

- Low efficiency. High power consumption;
- Due to machinery not being specialized polymers are chosen for the specific types of machines you have.
- Poor automatisation of manufacturing process.

## Chemical method toner manufacturing

Chemically prepared toner is manufactured by using chemical synthesis, This way of preparing toner is not new and is an object for researchers for last few years. Some of the most successful ways are shown below.

### Polymerisation of suspension

There are 5 stages of manufacturing:

- Components are mechanically dispersed;
- Suspension with particles of certain size is formed;
- Polymerisation of particles. Done in high temperatures, certain time and certain speed of mixing;
- Filtration, flushing and drying (removing of water and stabilizers);
- Mixing with additional surface components.

Used by Zeon Corporation.

### Emulsion aggregation

There are 5 stages of manufacturing:

1. Unlike polymerization of suspension, emulsion (latex) of acrylic-styrene polymer is formed first, then mechanically dispersed pigments and additional components.
2. Pygments and additional components then added to stabilized emulsion with polymerized particles size of approximately 0.1 – 0.3 microns.
3. Agglomeration of particles with basic polymer, pigments and additional components, is done to size of 1 – 4 microns. It is possible to create particles up to 5 – 13 microns. On that stage particles have no particular shape.
4. Then heating up to temperature higher than polymer softening temperature happens. By regulating temperature and time of mixing particles of different shape can be obtained, from shapeless (low temp., short time) to spherical (high temp., long time), reaching a compromise between effectiveness of transference (more ideal the shape is, the better transference happens) and ability of particles to be removed by doctor blade (particles of non-ideal shape can be better removed), and by increasing speed of mixing we can get particles of elliptical shape.
5. Filtration, flushing and drying (removing of water and stabilizers) and mixing with additional surface components.

Used by Xerox, Fuji Xerox и Konica-Minolta.

**Advantages of chemical method:**

- Usage of mass-produced machinery;
- High field of variety in choosing machinery at planning and modernizing manufacturing.
- High durability of the machinery.
- High degree of automatisation.

**Disadvantages of chemical method:**

- Low output of product (concentration of suspensions and emulsions must not be higher than certain value to prevent coagulation);
- High water usage for flushing;
- High requirements for absence of bound water in product (affects charge).



## Unique technology TonerCoin

For getting particles of spherical shape with diameter from 5 to 10 we use drip method.

Toner manufacturing plant consists of:

1. Feeder and melter of the source material.
2. Dispersion block.
3. Cooling and classification system.
4. Control and management system.

Plant functions as follows: melting, dispersion, cooling, classifying.

Process of manufacturing as well as the plant is scalable quite well, which allows designing and making facility for bigger amounts of manufacturing without spending a fortune.

Systems of control and management are thermocontrollers, sensors and controllers of dispersion block and feeder. They are all under control of main control unit.

Plant is a compromise between mechanical and chemically preparation of toner. Having advantages of both and almost no disadvantages.

High efficiency with low energy consumption. Small size and possibility to full automatisation makes it very promising for making toner and powder paint.

Researches show, that composition of secondary polymers is like that:

- HDPE и LDPE—70-80%
- PET—5-10%
- PVC—7%
- PS—8%.

They all belong to negatively polar polymers. Compound like that, and some water, in secondary polymer, does not allow it to be used for making toner. But that does not mean it can not be used as an additional component to basic polymer for changing triboelectric and rheological properties with sufficient treatment and milling.

Making of homogenizer will allow replacing of basic polymer by secondary which can cut costs even more without much losses in quality.

In our unique manufacturing process we will use biodegradable components, to minimize negative impact on an environment. Furthermore, our product is meant for lower heat in heating element, thus allowing manufacturers of printers opportunity to make a new more energy effective printers.

**Advantages of TonerCoin:**

- Lower prices;
- Higher DPI;
- Thin layer of toner;
- Good fluidity;
- Good transference;
- Stable characteristics;
- Low abrasiveness;
- Lower specific gravity
- Lower melting temperature.

## Strategic plan

There are several stages of project implementation:

1. **Bounty Campaign.** In order to popularize our campaign among users of the crypto-currency sphere, we allocate 3 million tokens for this campaign, which is equivalent to 300,000 dollars (with the lowest price of a token on PRE-ICO 10 cents). Selection of candidates will begin by the end of May 2018.
2. **Pre-sell of tokens on PRE-ICO.** This stage is needed for a marketing company, for making ICO. Tokens will be sold on lower price of 10 cents per token. As a result, articles will be published, advertising in mass media, polygraphic production. Advertising on ICO sites. Shooting video reviews. Organising and participating in conferences and forums. Manufacturing industrial model and it's start.
3. **ICO.** Goal of this stage is to raise 3.850.000 dollars. 11 million tokens are to be sold.
4. **Presale of production.** After ICO, presale will be announced. It is important to know, that the price will be much lower than the price of competitors. Because of limited plant capacity, shipment will be in queue order.
5. **Buying land plot.** In Chelyabinsk Region, Sosnovsky Area and making design estimates documentation.
6. **Building TonerCoin facility.** It is expected that it will be up and running after ICO in about 6 to 11 months.
7. **Sales.** Organising sales department and establishing sale channels.
8. **Assembling.** Making and installing assembly line and making contest between source providers.
9. **Testing.** Testing and commissioning works with starting manufacturing presale orders. Estimated manufacturing volume is 60 thousand kg. a month.

## Roadmap

**Q4.2016.** Making TonerCoin. Idea. Modernising current toner preparing technology, search for new ways of upgrading toner quality, reducing particles size and cutting costs.;

**Q1.2017.** Creating long-term strategy of TonerCoin;

**Q1-Q4.2017.** Selection of technical solutions, making experimental toner-manufacturing plant, design work.

**Q1.2018.** Revision of plant and testing;

**Q2.2018.** preparation for ICO, registering legal entity;

**07.2018.** PRE-ICO, marketing company;

**08.2018.** ICO, registration on stock market;

**09.2018-07.2019.** Buying land for building facility. Building facility. Presale through exchange of tokens to toner with 30% discount and following removal of tokens.

**Q3.2019.** Start of sales. Making orders in stock market every 4 month with buybacking for 30% from profit of Quarter with following removal of tokens.

## Dates

**Bounty:** 01.06 - 31.07.2018

**Pre-ICO:** 01.07 - 31.07.2018

**ICO:** 01.08 - 31.08.2018

### Token distribution

**18 300 000** TONER tokens ERC-20 will be distributed like following:

- **16,39%** — **3 000 000** sold during Bounty in **may-june 2018**;
- **16,39%** — **3 000 000** sold during Pre-ICO in **june 2018**;
- **60,11%** — **11 000 000** sold during ICO in **jule-august 2018**;
- **7,10%** — **1 300 000** are for creators and team of developers. These tokens are held on smart-contract and can be taken from it not earlier than **6** (half) and **12** (other half) months after ICO.

### Prices during PRE-ICO

Price of 1 TONER:

- 0,1\$ during all time of PRE-ICO.

### Prices during ICO

Price of 1 TONER:

- 1 day = 0,35\$;
- 2 day = 0,45\$;
- 3 -31 day = 0,55\$.

### Lock Up period

According to rules of distribution of TonerCoin, 9.01% of issued tokens are for project team. Half of this tokens will be frozen and could not be sold for 6 months after ICO on 1 of august 2018, other half — during the year. This is made to motivate the team.

## Smart-contract

Implemented functions of smart-contract:

- **Funds cannot be withdrawn by TonerCoin team.** We can only withdraw after success of PRE-ICO. By that, we guarantee honesty to our investors.
- **Automatic refund.** If we can not reach needed amount during PRE-ICO, in 2 months investors can refund.
- **Honesty of transactions. For transparency and honesty of transactions, you can see all of them.** We accept only ETH. You can convert to ETH in your investor account.
- **Limit of BOUNTY.** Only we can issue tokens and only before the end date of ICO. During ICO we can not do that.
- **Automatic removal of tokens.** When exchanging tokens for product, tokens are automatically removed
- **Limits on ICO.** On every stage we need specific amount in USD. After reaching goals or deadline we can not raise any more money.

### Blockchain usage

1. Token exchange for product will only be done through smart-contract, which allows transparency and excludes third-parties.
2. All production of TonerCoin company will be marked with unique QR-code, which will certify authenticity and quality.

### Why token will grow?

1. No additional token creation.
2. When exchanging tokens for product **90%** of tokens will be removed automatically. **10%** will be saved on smart-contract for building new factory.
3. For securing profitability of project we will use buyback. Every quarter we will remove some of the tokens. Removal of the tokens will happen in these cases:
  - a) When exchanging for toner with a discount of **30%**;
  - b) After building and starting a factory every quarter on the stock market order will be placed for **30%** of profit of the company of the 1 quarter.

## Project team

**Shitikov Alexey** – CEO.

**Dolgov Alexandr** – Smart-contract developer, solidity developer.

**Smirnov Alexey** – Technical director. Information support of the company

**Bovin Sergey** – COO. Head technology specialist of toner manufacturing, toner manufacturing plant engineer.

**Bannykh Ivan** – CMO. Blockchain consultant, investment in Blockchain trainer (head of BlockChain Ural).

**Adaev Kanat** – CMO. Blockchain consultant, investment in Blockchain trainer (head of BlockChain Ural).

**Golubitskiy Egor** – Technology specialist, technological process engineer, toner quality control.

**Serebryakov Alexandr** – Office equipment engineer, refilling cartridges.

**Serebryakova Marina** – Office-manager, documentation.

**Gorshkov Semen** – Designing layouts and leaflets

**Sharipov Denis** – Head of VTB Leasing of Chelyabinsk region, financial consultant.

**Kuznetcov Vasiliy** – Associate Professor, Candidate of Economic Sciences, Lecturer in CSU, stock market consultant.



## Company Details

- ООО «Изумруд», ОГРН: 1137453003621, ИНН: 7453254479, КПП: 745301001. <http://chelyabinsk.tizu.ru/company/9050027/>