

The innovative proposition

to attract investors and buyers

1. Name of innovation

THE COMPLEX OF THE CRYOGENIC TECHNOLOGIES FOR THE PRODUCTION OF PURE HYDROGEN AND HELIUM CONCENTRATE FROM FOREIGN GAS PRODUCTS OF AMMONIA PRODUCTION

2. Intellectual Property

Select the appropriate position, put the mark «+». Write relevant information.

- Patented Innovation countries: Ukraine
- Filed for a patent countries: _____
- License agreement or Exclusive rights. Exclusive rights _____
- Other (specify) _____

3. Type of innovation

Select the icon by replacing from "-" to "+"

| | |
|---|------------|
| - | Product |
| + | Technology |

| | |
|---|------------------------------|
| + | Result of R&D |
| - | Other (discussed separately) |

4. Areas of innovation

Select one or more applications innovation by replacing from "-" to "+".

| | |
|---|--|
| - | Automobiles, transport and logistics |
| - | Agriculture and food technology |
| - | Aerial and space technology |
| - | Biochemical technology |
| - | Building |
| - | Military Industrial and Safety |
| - | Energy and Energy Saving |
| - | IT-technology, ICT industry and services |
| - | Light industry |
| - | Marine industry and services |
| - | Environment |
| - | Nano- and Micro Technology |
| - | New materials |
| - | Medicine and Health |
| - | Creative industry |
| - | Tourism and cultural heritage |
| + | Other. (Please specify below the scope) |
| | Chemical industry |

5. Novelty

What does innovation superior (in digits or qualitatively) already existing? (The answer should be clear and concise - three main arguments in support of the use of promising innovations in domestic and/or foreign markets)

In the ammonia production, the gas mixtures that contain useful products including hydrogen and helium are obtained. The leading cryogenics companies like Linde (Germany), AirProduct (USA) and others developed technology to extract and enrich the hydrogen fraction for purpose of recycling H₂ in ammonia production.

In the known technologies, hydrogen is obtained as bottoms product in the distillation column and helium-hydrogen mixture is obtained as secondary flow of this column with helium concentrations less than 40%.

For ammonia plants with a selection and preliminary hydrogen enrichment fraction installations a set of technologies for the separation of hydrogen-helium mixtures to obtain pure components (hydrogen and helium) is proposed.

The enrichment of the helium-hydrogen mixture by the condensation method is carried out in the dephlegmator. The choice of the concentration and cooling temperature is carried out with considering further processing of helium technology and its final quality.

The quality of the helium gas at output is 99,9999%. Raw materials: He-H₂ mixture or He-Ne mixture. Maximum performance for the pure product 40 standard m³/h. Charges of the liquid nitrogen producing is 2.5 kg of N₂/m³ of He.

6. Stage of Innovation

What is innovation's stage of development? Select the icon by replacing from "-" to "+"

| | |
|---|---|
| - | The concept, proof of concept |
| + | The prototype, which tested and available for demonstration |
| - | The technologies for small-scale production |
| - | The technology is ready for industrial application |
| - | Commercialized |

7. The presentation innovations

Select one or more forms by replacing badge from «-» to «+»

| | |
|---|-------------------------|
| - | The demonstration model |
| - | Multimedia presentation |
| - | Report |

8. Information about the participants, which apply innovation

| | |
|---|--|
| | <i>If innovation is filed away</i> |
| First Name Last Name | Odessa National Academy of Food Technologies (ONAFT) |
| address | Ukraine, Odessa, Kanatnaya str., 112, ONAFT, Research institute ONAFT |
| web-site | onaft.edu.ua |
| The person responsible for communication with the organizing committee of the Forum | |
| position | Chief of Department of the normatively-technical providing and metrology |
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