

CEDEVITA[®]

TECHNICAL DESCRIPTION OF THE SUBJECT OF THE PROCUREMENT

PROCUREMENT TITLE: **Exclusive rights to use a technological solution for a covering cap and contract research to produce a packaging prototype**

PUBLICATION REFERENCE: **Supplies 03**

PROJECT TITLE:

Cedevita Healthy OTG – The development of a new, healthier and low calorie instant vitamin drink

CALL TITLE:

Development increase of new products and services that are result from research and development activities

CALL REFERENCE: KK.01.2.1.01.

Zagreb, June 2017.



Europska unija
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Background information

The Cedevita Healthy OTG Project - The development of a new, healthy and low calorie vitamin instant drink refers to the industrial research of the chemical composition, recipe and packaging of a new mineral-vitamin beverage that will last up to 18 months, experimental development of a new product up to the stage of a well-established and technologically advanced system lasting up to 6 months, making a feasibility study, which will last up to 3 months.

Cedevita d.o.o. granulated vitamin instant beverages, from the category of dietary supplements, are included in the category of **functional drinks** with the role of supplement and / or full compensation of vitamins in daily diet. The product is offered on the market through three sales channels - retail (intended for domestic consumption), HoReCa (intended for consumption in catering establishments) and on the GO! (Intended for consumption on the move).

On the GO! The product version is the subject of the "**Cedevita Healthy OTG**" project, and the product components are: **i) granules; and ii) the cap and the bottle** (the packaging in which the product is offered on the market). The product itself (granules) consists of several key ingredients, where particular emphasis is needed on vitamins B1 - thiamine, B2 - riboflavin, B3 - niacin, B5 - pantothenic acid, B6 - pyridoxine, B9 - folic acid, B12 - cyanocobalamin, C - ascorbic acid, E), sugar, and natural flavorings. **Because of its relatively higher sugar content, the product cannot be characterized as low calorie beverage** which directly affects its market potential and reduces the significant benefits of a functional drink. This aspect of the problem is the backbone of project activities, given that the **research department of the company will for the first time work on a radical change in the chemical composition of the beverage**, through the desire to significantly reduce the share of sugar in order for the product to meet the growing market needs.

Another key aspect of market placement on the GO! The version of the product is its packaging, with the key component considered as an innovative covering cap that the company developed and launched in 2009. (European Patent No. 2167395). Innovative opening mechanism and volume for 25 g granules. Furthermore, due to the specific design of the product consisting of two components (cap and cap tank), **the construction of the cap cannot be physically separated from the bottle**, which prevents the packaging of the product from being adequately disposed of and endangers its ecological acceptance. The bottle is made of classic PET packaging and a cap in combination polypropylene and high density polyethylene with aluminum composite foil at the bottom of the cap, so because of the impossibility of their physical separation the packaging cannot be properly disposed and recycled.

Procurement item description:

1) The Tenderer must offer a license that will authorize the Client for exclusive use of intellectual property rights, including all related knowledge and skills to the complete technology, specification, 3D model and the way of manufacturing an innovative cap for packaging, preserving and activating the product .

The goal of using intellectual property that is acquired is acquiring the knowledge necessary to demonstrate technical feasibility and proving the innovative concept of a new product.

Such knowledge must enable the research and development of multiple prototype cap whose solution will be adapted to the functional requirements and packaging properties of the new product to determine the optimum cap solution. The optimum cap solution will be considered as a solution with regard to composition, dimensions, volume, shape, functional features and other characteristics suitable for grain packing and on-the-go placement of a new product.

The new design of the cap should be conceived that its functionality offers solutions that avoid technological flaws and cumbersome cap design.

The offered solution should not allow the possibility of defects such as insufficient passage of the product grains into the liquid due to inadequate opening in the foil (eg. due to the simultaneous puncturing of the foil and spreading the opening in the foil or spreading the opening in the foil prior to the puncture of the foil and rest), the inability to activate the cap.

Functional features:

- The covering cap serves as a watertight container that will be filled with the product grains.
- The cap must allow adequate packing of the appropriate quantity of the product, up to its preparation and consumption.
- The cap must be able to preserve the product from mixing with water from the bottle and to provide protection from the external atmospheres
- A foil can be placed between the cap and the bottle, which prevents mixing the product and water grains before activating the mechanism
- The plug has an activation mechanism that serves as a system for releasing the cap content into the bottle, with the mechanism that prevents random activation
- The cap can be completely detached from the bottle for a proper disposal
- The covering cap can be easily and safely handled
- The plug can be reliably reproduced and mass produced without any difficulty

Technical features:

	<i>Parameter / Item</i>	<i>Characteristics (Minimum requirements)</i>
No.	Activation mechanism cap	
1	Grain container	Prevents mixing with water from the bottle. Easily detachable from the bottle.
2	Tank volume	Variant 1: more than 6 ml. Variant 2: more than 20 ml.
3	Bottle diameter of PET bottles	Variant 1: PCO 28 mm 1810 neck finish Variant 2: PCO 38 mm
4	Cap weight	Variant 1: < 8 g Variant 2: < 13 g
5	Cap activation	The cap is activated by pressing the aluminum membrane (foil). It permits that grains fall into the bottle of water and allows a balanced mix of grain and water. The foil crumpling concept prevents the foil to fall into the mixed beverage that is consumed. It contains a mechanism that protects accidental activation.
6	Foil that separates the bottle cap	Aluminum composite foil. Works as a protective membrane that separates the grain from water.
7	Handling	The activation of the grain release mechanism in the water bottle must be simple, easy and safe for the consumer. The activation of the mechanism is performed simply, by pressing the hand on the cap (without use of force).

Phase 2 – Industrial research includes a contractual research to produce a prototype of a lower level packaging, (TRL 4), which is necessary for product testing in laboratory conditions.

Tender is expected to perform the following activities:

- Research of different closure materials and testing their functional application suitable for using in food industry and to be in food contact
- Proposal of the material optimal solution for closure production taking care about closure functionality and environmentally friendship
- Pilot tools closures development, two volumes, two colours, low level development according customer requirements
- Production, QA control and measurements (functionality, TORQUE tests, wall thickness) and delivery closures samples low level development for laboratory testing
- Making necessary prototype closure modification according customer laboratory testing
- Creating bottle technical specification according to the closures specifications
- Bottles pilot tools low level development according the customer requirements for laboratory testing
- Production, QA control and measurements (functionality, sealing tests, wall thickness) and delivery bottles samples low level development for laboratory testing
- Making necessary prototype bottle modification according customer laboratory testing
- Specification different multilayer Al film solutions for application on low level closure samples (for laboratory testing purpose only)
- Making necessary solution for Al film depending on customer laboratory testing
- Repetition of each phase activity till reaching fully closures, Al foils and bottles functionality and quality of samples low level development

This phase must be finished until 31.1.2018., during the process of industrial research until To proving the technical feasibility of the new product prototype (TRL 4), carried out at the laboratory level.

Expected results:

Phase 2 - Industrial research should give results in choice of volume and material of the cap in at least two colors, volumes and grammage of PET bottles and selecting and defining the Al film structure.

Phase 3 – Experimental development includes a contractual research to produce a prototype of a higher level packaging, development of final product packaging (TRL 8) which is necessary for product testing in industrial / operational conditions. Phase 3 of contractual research is based on the results of Phase 2.

Tender is expected to perform the following activities:

- Production and delivery high level closures prototypes for testing in industrial/operational conditions (testing in minimum quantity delivery)
- Chosen AI film delivery
- Modification on closures prototypes depend on industrial/operational conditions testing
- Production and delivery high level bottles prototypes for testing in industrial/operational conditions (testing in minimum quantity delivery)
- Modification on bottles prototypes depend on operational conditions testing
- Modification on foil prototypes depend on in industrial/operational conditions testing
- Repetition of each single activity till reaching expected closures, AI films and bottles functionality and quality (mechanical functionality and product protection)

This phase must be completed within 6 months, during the experimental development of the new product to the establishment and qualification of the technological system (TRL8), carried out in the industrial / operational environment.

Expected results:

Phase 3 – The experimental development should result in the final prototype of the covering cap suitable for industrial production, final selection of the volume and covering cap material in at least two colors, volume and grammage volume of the PET bottle and by selecting and defining the AI film composition.