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## IZUMIO GUIDEBOOK

**Product Guidebook** 



# HYDROGEN—the origin of the universe, WATER—the source of life. IZUMIO is created by binding these two forces together.



Hydrogen exists in water and most organic compounds, but we seldom notice its existence in our daily lives. Yet, it is an indispensable element that sustains our lives.

For example, carbohydrate and fats give our body energy. Hydrogen plays an important role when our body utilises the energy from these nutrients. In other words, hydrogen is a key substance for all living organisms. Water is formed when hydrogen and oxygen are combined.

Water comprises 65% of a typical adult's body weight. It performs vital functions for our daily activities as it delivers the required nutrients to every part of the body and regulates our body temperature, all of which are crucial to our existence.

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# Our aim is to bring you high-quality hydrogenated drinking water (at time of packaging)\*1.

## High hydrogen dissolution rate of 2.0mg/L (at time of packaging)\*1

The most striking feature of IZUMIO lies in its extremely high concentration of dissolved hydrogen in water, which makes it stand out amongst products of similar existing technologies.

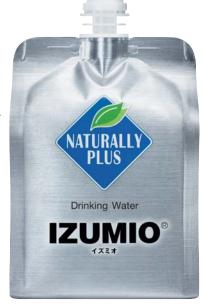
· mg/L is the unit of measurement used to express the hydrogen dissolution rate, and has the same meaning as parts per million (ppm). 1mg/L = 1ppm

# Manufactured with advanced membrane dissolution technology

Hydrogen is dissolved into the water with membrane dissolution technology.\*2 The hydrogenated water is then filled into aluminium film packaging. The application of this technology to the manufacture of drinking water is the first of its kind in the world.

#### **Deaerated water**

To enable more hydrogen to be dissolved in the water, the water is first subjected to a deaeration process in which oxygen is removed. This also helps to prevent the dissolved hydrogen from oxidising.



Hydrogen dissolution rate and ORP (Oxidation-Reduction Potential) change over time. "Time of packaging" refers to the stage in the manufacturing process where the aluminium film packaging has been filled with IZUMIO.

## ORP (Oxidation-Reduction Potential) of -500 to -700mV (at time of packaging)\*1

IZUMIO has an ORP (Oxidation-Reduction Potential) of -500 to -700 mV (at time of packaging)\*1. ORP refers to the value indicating the oxidation reduction ability of a substance. A positive value denotes the potential for oxidation; a negative value denotes the potential for reduction.



#### **IZUMIO**

- Name: Hydrogenized drinking water
- Raw materials: Water, hydrogen
- Content: 200ml
- Nutrition Information (per 200ml):

Calories 0Kcal

Protein 0g, Fat 0g

Carbohydrates 0g, Sodium 0mg

- Package: Aluminium film packaging
- To be consumed within a year of the date of manufacture

Membrane dissolution is an advanced technology which makes it possible to dissolve hydrogen in water by passing it through a fine membrane permeable by gas and not liquid. The same technology is used to effect the gaseous exchange of oxygen and carbon dioxide in artificial lungs.

## Delicious hydrogenated and mineral-rich drinking water

Manufactured with innovative technology which enhances the concentration of dissolved hydrogen in water while retaining its original mineral content, IZUMIO makes for delicious drinking.

# Hydrogen leak-proof Cheer Pack aluminium film packaging

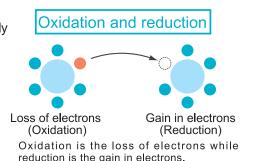
The four-layered aluminium film packaging, or Cheer Pack, provides maximum hydrogen retention. Apart from minimising hydrogen leakage, it also prevents exposure to outside air. The cuboid packaging is also compact and highly portable.

### Redox (reduction-oxidation) is a natural process of life.

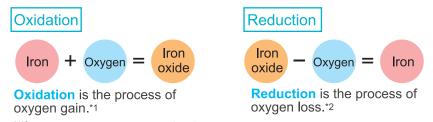


## The relationship between oxidation and reduction

Oxidation is defined as a reaction whereby a substance is chemically combined with oxygen, or one whereby it loses hydrogen.
Reduction is the exact opposite phenomenon, defined as the reaction whereby an oxidised substance loses oxygen, or one whereby a substance gains hydrogen.



Burning charcoal and rusting iron are some examples of oxidation. On the other hand, the removal of oxygen from iron oxide (or iron ore) to produce iron in the steel mill is an instance of reduction.



<sup>\*1\*2</sup> This example has been simplified for easy understanding.

Oxidation and reduction are two sides of same coin, and occur simultaneously.

For example, while vitamin C reduces the substances that interact with it, vitamin C is itself concurrently oxidised.

A human body burns carbohydrates from food with oxygen gained through breathing. In order words, humans create energy by oxidising. Concurrently, the components in our body are reduced when utilising that energy.



## What is ORP (Oxidation-Reduction Potential)?

ORP is a measurement of the oxidation-reduction value of a substance. A positive value denotes the potential for oxidation; a negative value denotes the potential for reduction. ORP in our body increases with age; in other words, it has an oxidising tendency. However, even with the body's inclination towards oxidation, it does not mean that reduction is difficult because the ORP is ever fluctuating. Since the load on the body increases as oxidation proceeds, it is important to keep the ORP as low as possible to maintain good health.

### **Hydrogen Trivia**

#### ■ Atomic Number 1

The atomic number of hydrogen is 1. It is the smallest element in the universe with a simple structure of one proton and one electron.

#### Etymology

The word hydrogen originates from the Greek words hydro (water) and gennao (to generate). It is so named because it combines with oxygen to form water.

#### The most abundant element in the universe

Hydrogen roughly constitutes 91% of elemental mass in the universe; this means that most of the universe is made up of hydrogen.

#### A Closer Look into IZUMIO 1: Manufacture

### Membrane dissolution: advanced hydrogen dissolution technology

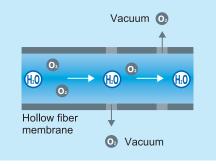
The manufacturing process of hydrogen-rich IZUMIO employs edge technology.

## STEP 1

### Removal of oxygen from water with degassing equipment

The deaeration or degassing process removes oxygen dissolved in the water. This process allows more hydrogen to be subsequently dissolved in the water. Oxygen dissolved in water is discharged through micro-pores\*1 in a hollow fiber membrane when water is run through it in a vacuum state.





\*1 The hollow fiber membrane is a tube-shaped thread with minute pores on its wall which allow gas to pass through while liquid is retained.

### IZUMIO is manufactured in a Health Supplement GMP\*2-compliant factory

Located in the mountains of Tochigi Prefecture with good air and clean water, the designated IZUMIO plant is Health Supplement GMP\*2-compliant. IZUMIO is produced with extreme care using the latest technology and in a clean environment with sterile facilities to deliver pure and sanitary hydrogenated water.

\*2 GMP (Good Manufacturing Practice) refers to a standard that can be implemented on work processes and appropriate quality checks for the manufacture of quality products.

membrane dissolution among other exemplars of cutting-

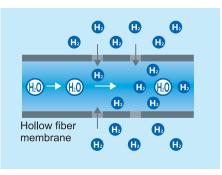
### STEP2

### Injection of hydrogen into water by membrane dissolution

When deoxygenated water is passed through the hollow fiber membrane, whose surrounding space is filled with hydrogen, the hydrogen will pass through the pores in the membrane and dissolve in the water. This method is known as membrane dissolution and is also used in the mechanics of artificial lungs.

When mineral water is passed through the hollow fiber membrane, its mineral content and delicious taste are preserved.







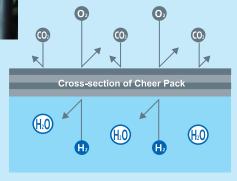
### We deliver IZUMIO with no hydrog en leakage

### STEP3

#### Cheer Pack prevents hydrogen leakage

IZUMIO is sealed in an aluminium film Cheer Pack, constructed with four layers designed to provide enhanced impermeability to gas, preventing exposure of hydrogen to outside air and leakage of the highly condensed dissolved hydrogen. To avoid contamination, IZUMIO is packaged in a clean environment with meticulous care.





## STEP4

#### Mechanical and manual quality inspections

Numerous tests, including X-ray inspections, are conducted at each stage of the production process. In addition, visual inspections are also carried out manually to detect defects such as leakages. Only products that pass all the inspections are packed and shipped for sale.





IZUMIO is subjected to X-ray inspection to detect the presence of foreign matter. The amount of X-ray radiation applied in this process falls within the safety levels stipulated by Japan's Food Sanitation Law.

### A Closer Look into IZUMIO 3: Purchase Method

# Please register as a member before you place an order

Naturally Plus products are available for sale exclusively to members through a unique membership-based direct selling system. You may wish to register as a member and place your order after learning more about our company and products. Your purchases will be delivered by Naturally Plus responsibly into your hands. Naturally Plus is a ISO9001\*-certified company and we strive to constantly improve our level of service excellence.

An international standard for quality management systems established by the ISO (International Organization for Standardization) for quality management and quality assurance.



### **Frequently Asked Questions**

- 0.1 What is IZUMIO?
  - **A.** IZUMIO is tasty hydrogenized drinking water, containing dissolved hydrogen while retaining its mineral content.
- when and how much IZUMIO should I drink?
  - **A.** As IZUMIO is a refreshing beverage, you can drink it at any time of the day. Please drink a pack daily. Drinking more each day is not necessarily better for you. Rather, it is more important to continue your consumption over a long period.
- Q.3 What is the pH value of IZUMIO?
  - **A.** IZUMIO is neutral. It can be absorbed without any burden to the body.

Note: The pH value is a measure of acidity or alkalinity levels.

0.4 Is IZUMIO suitable for everyone?

**A.** IZUMIO hydrogenized water is suitable for everyone from children to the elderly. For those who have to limit their water intake under a doctor's prescription, please drink according to your doctor's advice.

<sup>\*</sup> ISO9001

# How long will the hydrogen last after a pack of IZUMIO is opened?

A. Once opened, hydrogen can escape from the pack easily, so please drink it as soon as possible after opening the pack. Close the cap tightly to store the contents of an unfinished pack. In addition, to prevent hydrogen from escaping, please drink directly from the aluminium foil packaging instead of pouring the water into a cup.

### 0.6 Where should I store IZUMIO?

**A.** IZUMIO can be stored at normal room temperature. Please store it in a refrigerator or in a cool dark place away from direct sunlight and high temperature.

## How long is the shelf life of IZUMIO?

**A.** The Best Before date is indicated on the pack. The expiry date is 1 year from the date of manufacture. However, you are recommended to consume the product as soon as possible as the hydrogen dissolution rate decreases over time.

### .8 Can IZUMIO be frozen?

**A.** It is not advisable to store IZUMIO in a freezer. Please note that frozen IZUMIO can break apart easily if dropped.

## Can IZUMIO be used for cooking, or to make coffee and tea?

**A.** Yes. However, the hydrogen escapes when heated or when used in cooking. It is recommended that you consume IZUMIO directly from the pack in order to take in the hydrogen effectively. Also, please do not heat the aluminium foil packaging in the microwave.

### What does "ppm" mean?

**A.** "ppm" is a unit used to indicate concentration or ratio; for IZUMIO, it refers to the concentration of dissolved hydrogen in water. Percent (%) is a common unit used in the indication of concentration. However, "ppm" or "ppb" is used for low concentrations.

Given that 1.0 mg/L = 1.0 ppm, the concentration of dissolved hydrogen in IZUMIO is 2.0 mg/L = 2.0 ppm.

\* Percentage (%) = parts per hundred; ppm = parts per million; ppb = parts per billion; ppt = parts per trillion



