



GIDA TURKISH FOOD
GÜVENLİĞİ SAFETY
DERNEĞİ ASSOCIATION

8th INTERNATIONAL FOOD SAFETY CONGRESS



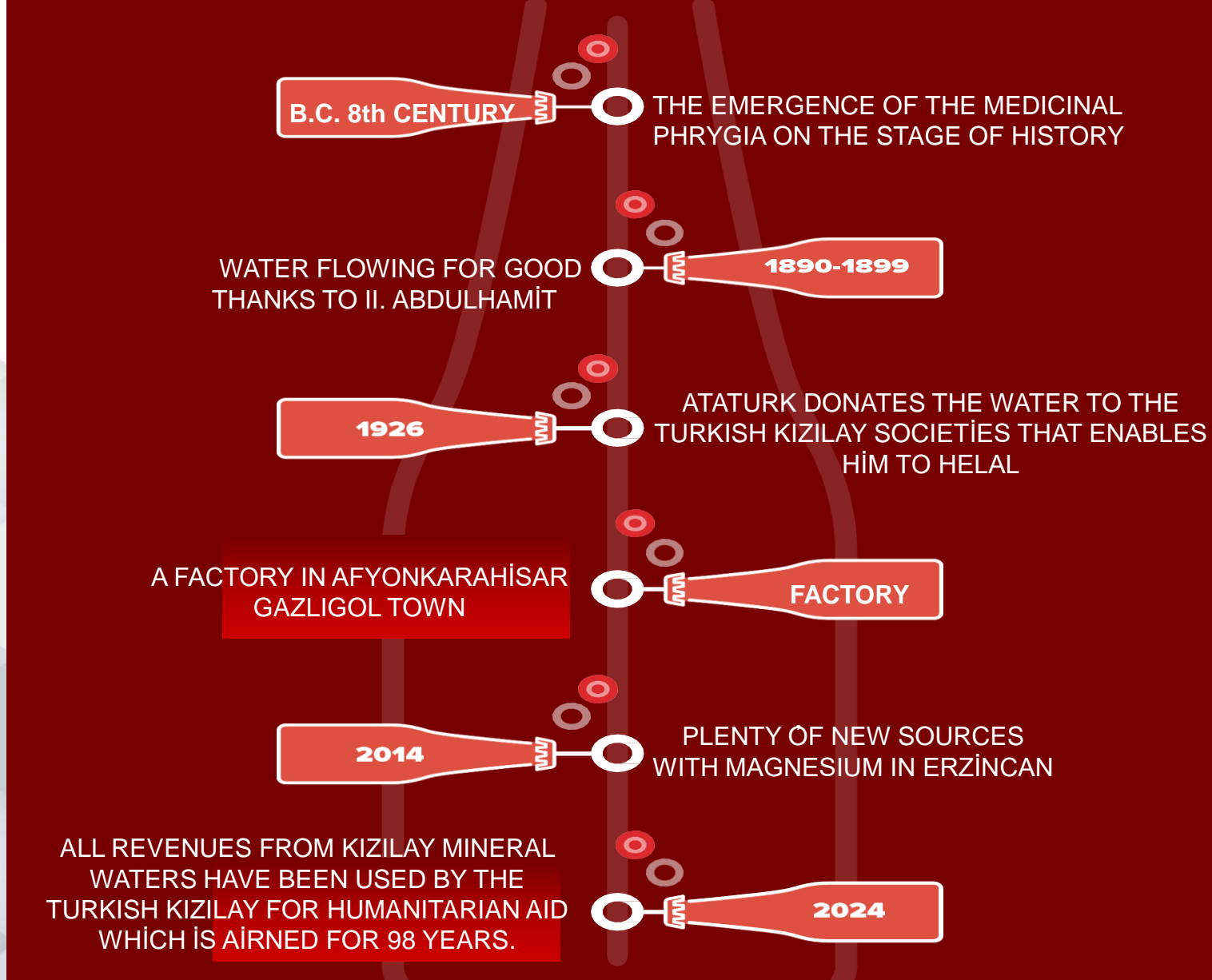
PLASTIC BOTTLE COATING TECHNOLOGIES AND INCREASING THE SHELF LIFE OF THE PRODUCT

DERYA NİMET AKCASU





KIZILAY BEVERAGE & RED CRESCENT ASSOCIATION





PLASTIC AND PLASTICS USED IN FOOD

Plastic packaging; It is obtained by processing various products from oil refineries in petrochemical facilities.

Polietilenteraftalat

Polivinil klorür

Polietilen naftalat

Poliamid

**Poliviniliden
klorür**

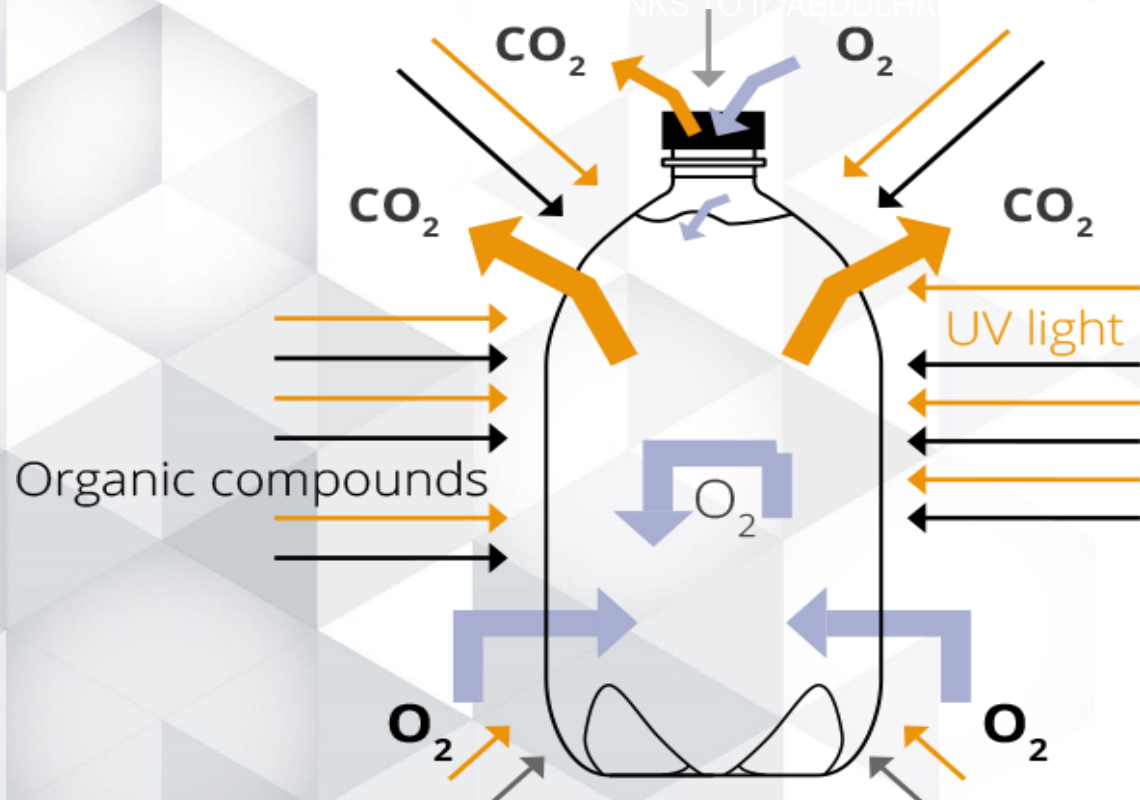
Polikarbonat



PET PACKAGING

It is obtained by condensation polymerization (polycondensation) or addition polymerization (multiple addition) of monomer units.

PET PACKAGING FEATURES



- Low cost
- Flexible
- Can be improved
- Recycleable
- High permeability
- Low stability
- Short shelf life
- Migration

In the food industry, PET (Polyethylene terephthalate) packaging is also widely used in the beverage industry due to its thermoplastic properties and being completely recyclable.

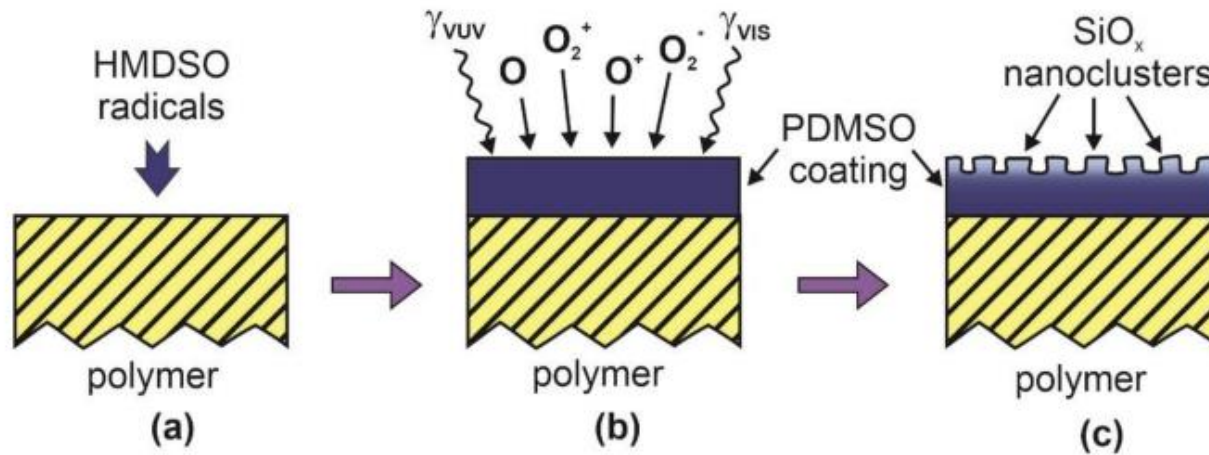
In order to improve the gas barrier feature of PET bottles used in today's industry, the following technologies can be used alone or in combination, each technology showing different properties.

- **Coating**
- **Multilayer**
- **Blending**
- **Oxygen scavenger**



COATING PROCESS

Coating process; PET bottles are placed in a vacuum chamber where gas propellant rods enter the bottles and the hexamethyl disiloxane-oxygen (HMDSO)* mixture is injected into the environment; It is carried out with plasma level surface adhesion (PICVD) technology with microwave effect.



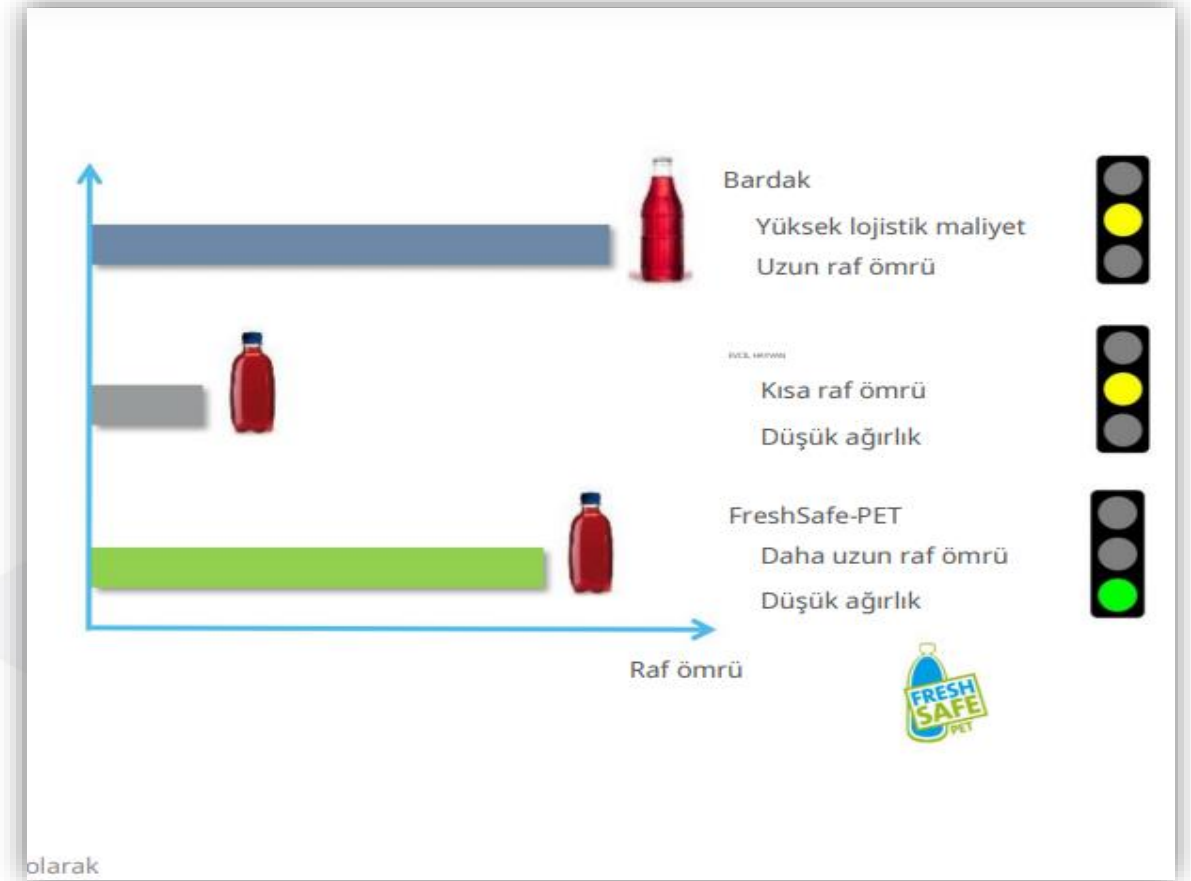
Studies on high-value barrier technology show that shelf life is significantly extended.

For example ;

- Fruit juice (%100) 330 mL3 8 ay
1.000 mL4 12 ay

Coating Process

- It is made as a protective top coating, including a three-layer coating





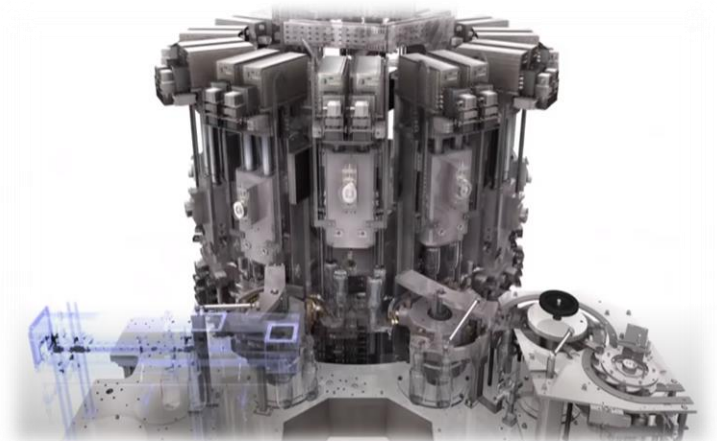
Touch glass bottle coated barrier technology.



1

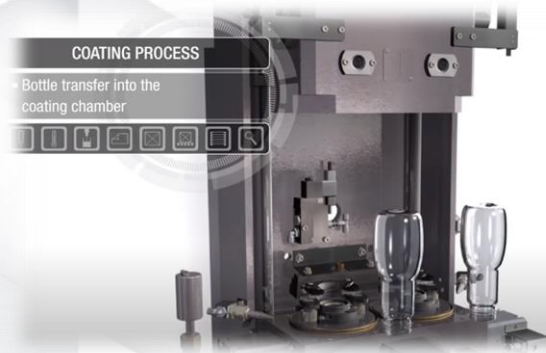


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3

Loading station.



4

Reaction gas mixture injection.



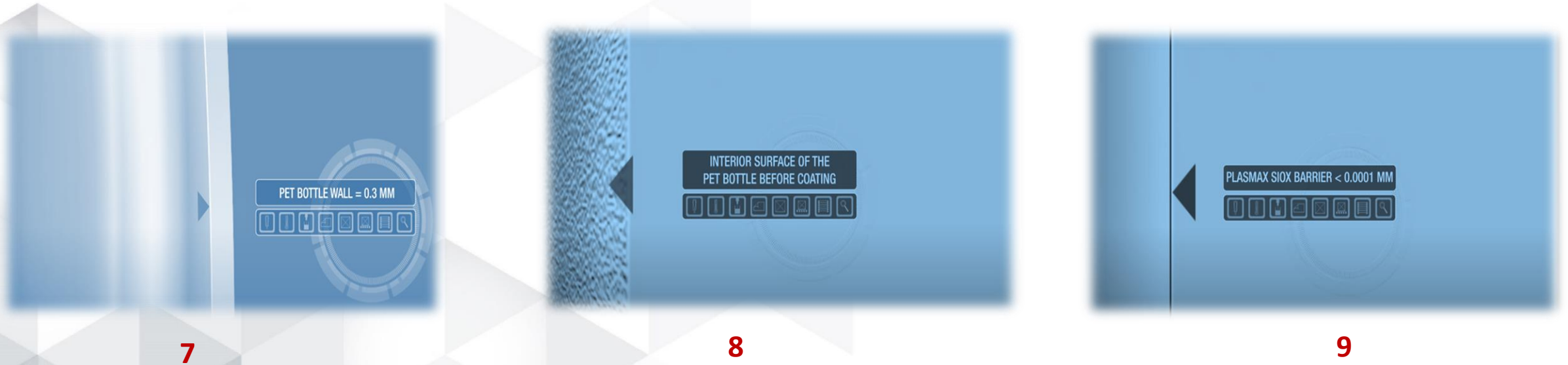
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Plasma reaction with pulsed microwave and SIOX separation in vial.



6

In KHS Plasmax's patented coating process, the inner surface of the PET bottle is coated with only a thin glass film. It is unbreakable because it is tightly bonded to PET in an insoluble manner.



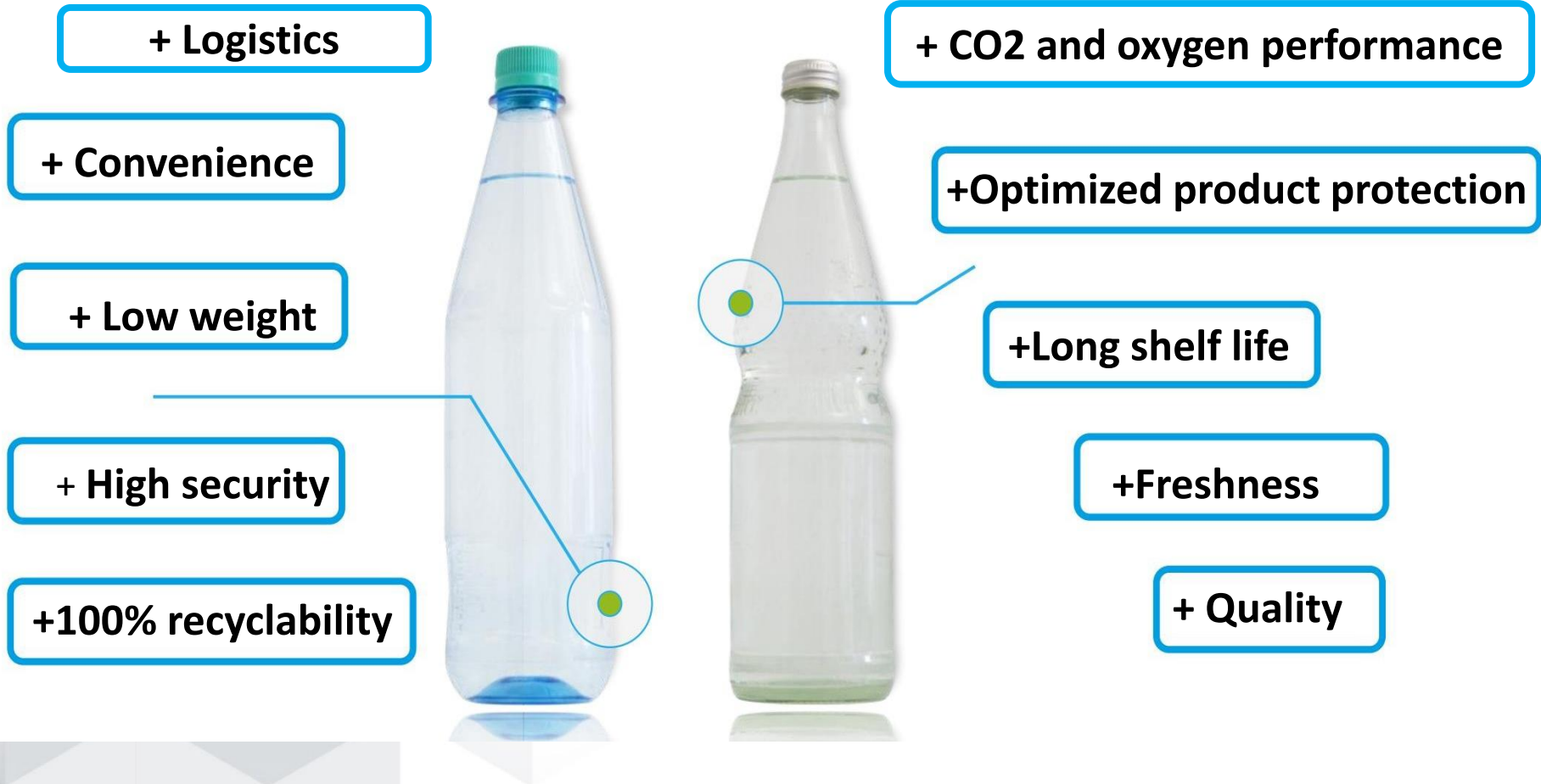


+BSiOx coating on the inside of transparent PET bottles, PREMIUM PET to standard PET.

***It provides excellent product protection and protects CO₂, O₂ ve H₂O prevents the passage and penetration of other chemical ingredients, flavors or colorants .**



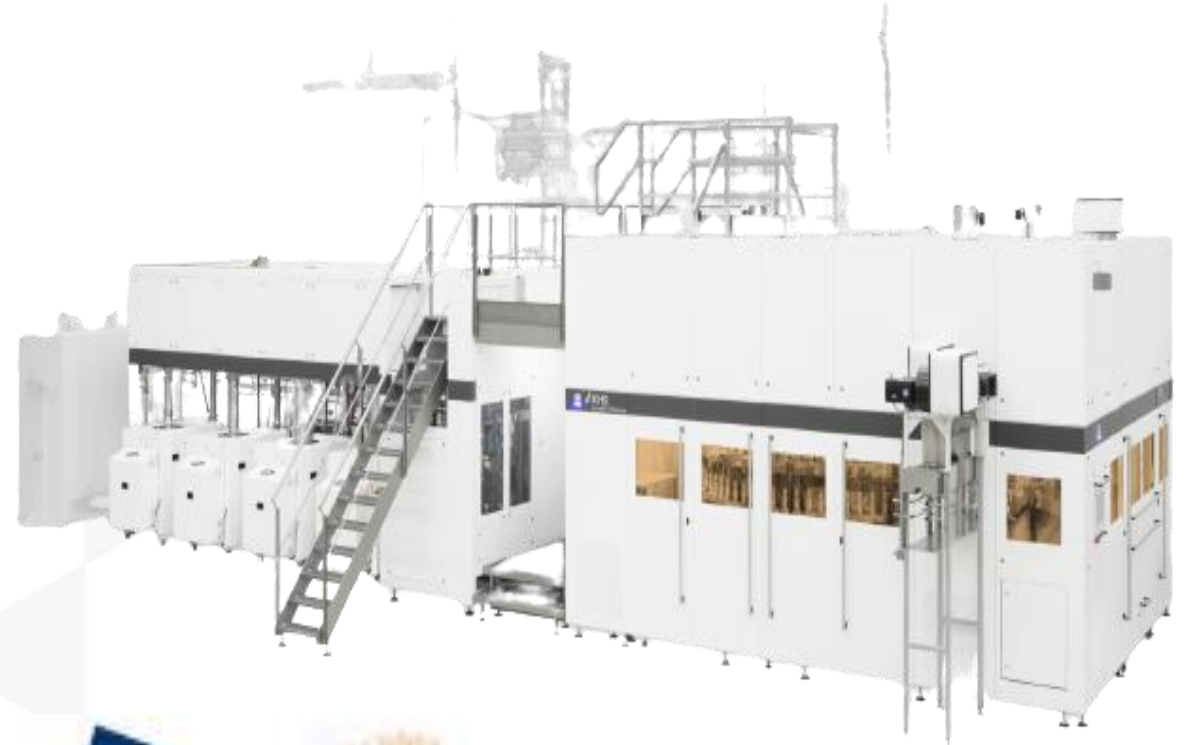
ADVANTAGES OF COATING TECHNOLOG





COATING TECHNOLOGY IN TERMS OF SAFETY

- *There are no glass particles in the PET bottle.
- *It is glued to PET
- *It is a food approved by many health authorities and national organizations such as the FDA.





SUSTAINABILITY AND COATING TECHNOLOGY



**THANK YOU
FOR YOUR ATTENTION**

