

 Prinova®



# The world of Vitamins

**A presentation by Steve Watts**

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## What are Vitamins?

Any of a group of organic compounds which are essential for normal growth and nutrition and are required in small quantities in the diet because they cannot be synthesized in the body.

*Or, more simply...*

Vitamins are organic compounds which are needed in small quantities to sustain life

## What role do Vitamins perform?

- Vitamins have diverse biochemical functions
- Some such as Vitamin D have hormone like functions
- Others such as Vitamin C and Vitamin E function as antioxidant
- The B complex Vitamins help enzymes in their work as catalysts in metabolism
- Vitamins are classified by their biological and chemical activity not their structure
- Vitamins are by definition convertible to the active form of the Vitamin in the body.



## Types of recognised Vitamins

There are 13 recognised vitamins which are classified into two groups:

- **Fat soluble vitamins**

- Vitamin A
- Vitamin D
- Vitamin E
- Vitamin K

- **Water soluble vitamins**

- Vitamin B Series:
  - B1, B2, B3, B5,
  - B6, B7, B9, B12
- Vitamin C

## Fat soluble Vitamins

- Stored in the fat and liver tissues of the body
- Can stay in the body in reserves for days or even months
- Absorbed through the intestinal tract with the help of fats (lipids)
- Found in fatty foods; dairy, liver, greens and oily fish

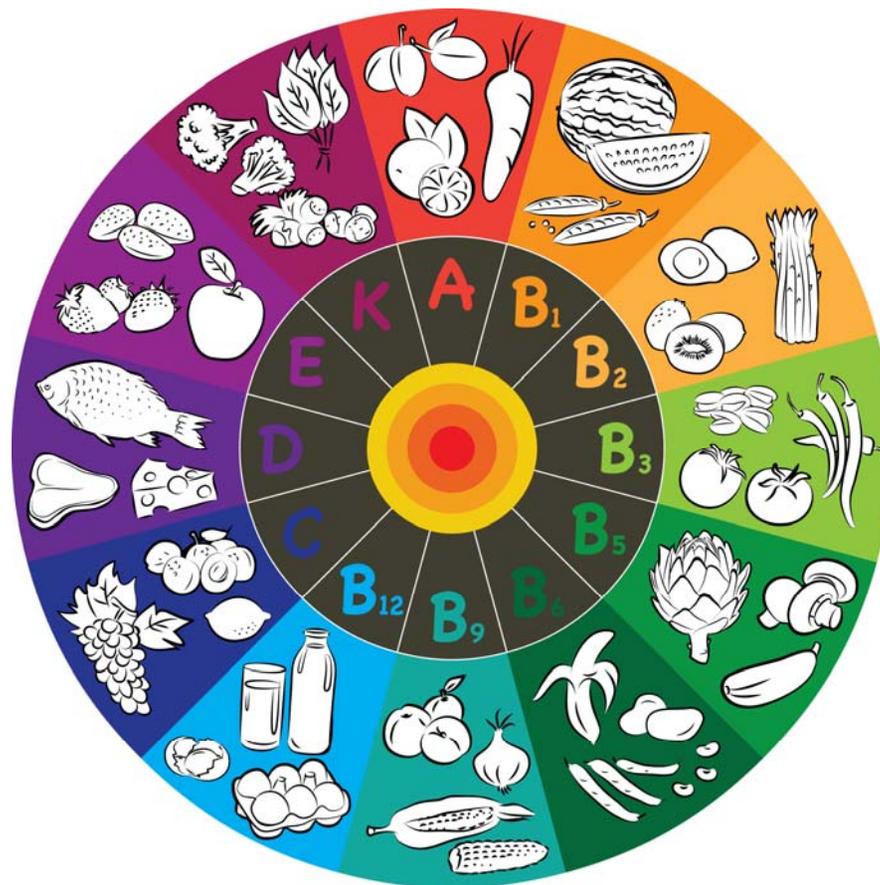


## Water soluble Vitamins

- Stored for short periods of time in the body, expelled in urine
- The body needs these vitamins more frequently than fat soluble vitamins
- Found in fruit, vegetables and grains



# The Vitamin wheel



## Vitamin deficiency

The body should be able to get sufficient vitamins from a healthy diet and exposure to the sun.

However many people are vitamin deficient and they tend to be categorised as:

- Older people aged 50+
- Those in poor health
- Housebound
- Living in northern latitudes
- Having a poor diet
- Those with darker skin
- Pregnant/breastfeeding women

## Vitamin demand is growing

- A market has grown for food fortification and vitamin supplements
- Vitamins are being added as functional ingredients in beverages
- New vitamin delivery systems being developed, e.g. nutritional bars and gummies



## The rising demand for vitamins

- Vitamins have become an affordable and reliable insurance policy for those in need
- Consumer trend for preventative medication
- Aging population is increasing demand

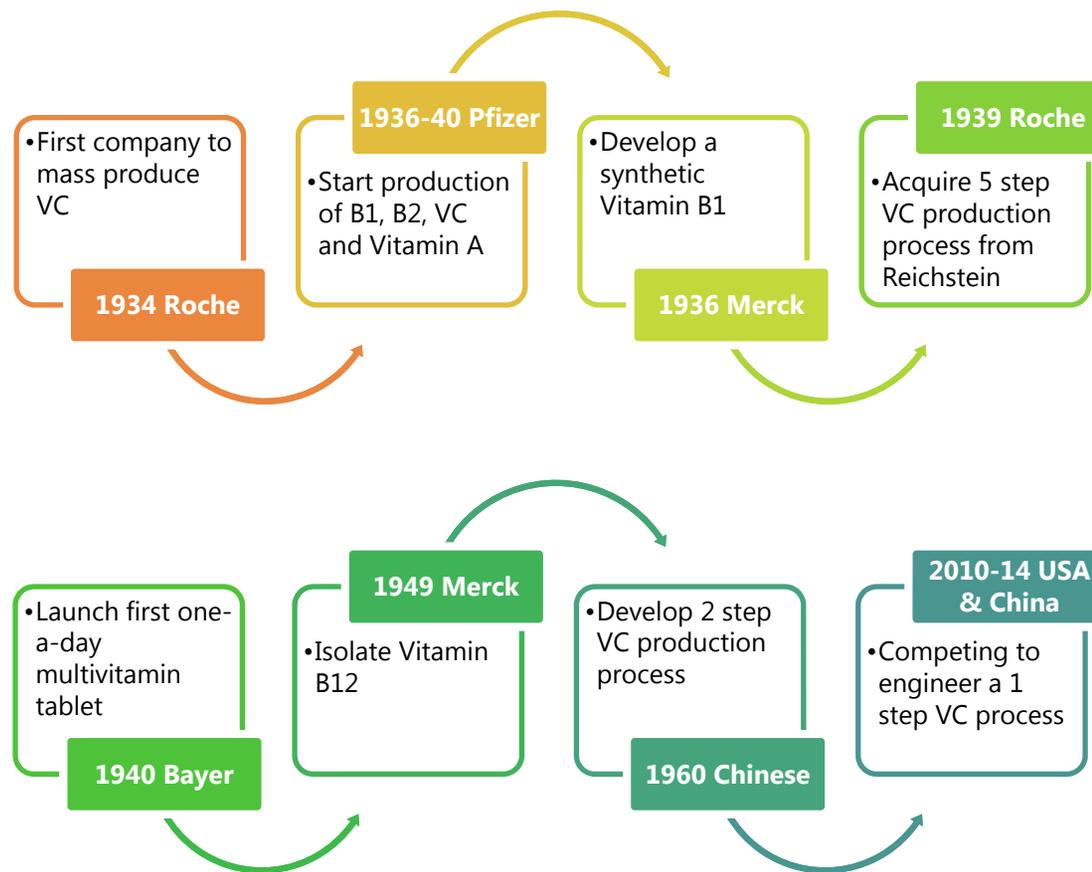


## Vitamin production overview

- Until the mid 1930's (when the first commercial forms of VB complex and VC were made available) Vitamins could only be ingested through food intake
- Since the 1950's Vitamins have been produced as speciality and then commodity chemicals and made widely available in multivitamin, dietary and food supplements



# Vitamin production timeline



## Vitamin production history

- Once dominated by western producers; Roche, Takeda, BASF and Pliva
- The breakup of a price fixing cartel in 1999 caused price drops for many vitamins
- Several western producers then exited the market
- Market is now more open and competitive with producers in China and India having taken a large share of the market



## Global Vitamin market sizes

*Global Production of Vitamins – 300,000 mt (undiluted)*

### Vitamin A

6000 MT global market (as 2.8 million iu)  
2,000 MT USA (as 2.8 million iu)

**A**

**B**

### Vitamin B Series

80,000 MT global market  
20,000 MT USA

### Vitamin C

135,000 MT global market  
30,000 MT USA

**C**

**D**

### Vitamin D

90 MT global market (as 40 million iu)  
30 MT USA

### Vitamin E

80,000 MT global market (nat + synthetic )  
30,000 MT USA

**E**

**K**

### Vitamin K

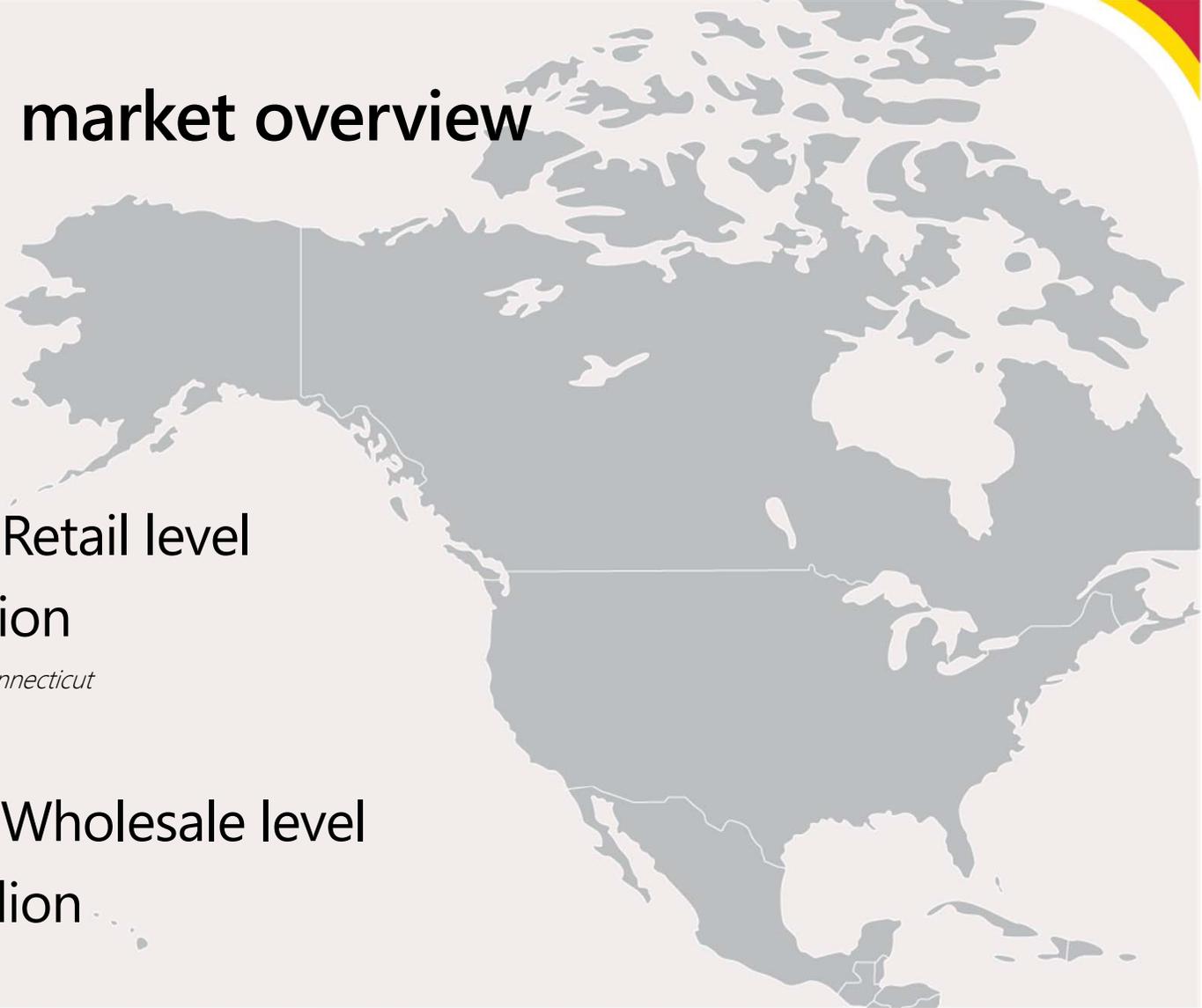
50 MT (as pure) global market  
15 MT USA

## Vitamin production **natural** or **synthetic**?

- Most Vitamin products are produced synthetically
- Even those Vitamins produced from natural raw materials cannot be described as natural as organic solvents are used in the production process
- There is a natural form of Vitamin E produced from soya bean, palm distillates



## US Vitamin market overview



○ Vitamins – Retail level

○ \$12 billion

*Tabs Group Inc , Shelton, Connecticut*

○ Vitamins – Wholesale level

○ \$1.5 billion

*Global Industry Analysts , CA*

## US wholesale Vitamin market sector breakdown

**Feed**  
70%



**Food & Beverage**  
15%

**Pharma/DS**  
15%



**Cosmetics**  
Fastest growth

## US wholesale vitamin market breakdown

Vitamin A  
\$550 million

A

B

Vitamin B Series  
\$265 million

Vitamin C  
\$150 million

C

D

Vitamin D  
\$80 million

Vitamin E  
\$450 million

E

K

Vitamin K  
\$10 million

*A, E, C account for 75% of total sales*

## Current Trends in the vitamin market

- Increasing demand for gummy vitamins
- The multivitamin is the cornerstone of consumer demand
- Vitamin C sales in beverages/juices are falling
- Growth of B vitamin supplements
- Vitamin D sales are growing as the positive health benefits are becoming known
- Vitamin sales in sachets/stickpacks are growing



## Future trends in the Vitamin market

- Water soluble Vitamins growing at 2-3% pa globally but Asia will exhibit the strongest growth
- China VC market will grow from 20 to 40,000 MT in the next 5 years
- Market consolidation in China as we move out of the era of overproduction and loss making producers
- VC – a monopoly that continues to lose money, how long can this last?
- Vitamin D will continue to grow
- Vitamin K2 looks to have a good future as its role in inhibiting arterial stiffness becomes more well known



## Prinova's role in the Vitamin market

Global sales of **20,000MT**  
of single Vitamin  
products in 2013

US sales of **13,000MT**  
of single Vitamin  
products in 2013



**Sixth  
largest**  
nutrition industry  
supplier USA



## A logical extension of our supply chain



- 2010 acquired **Vitamins Inc** which took us into **liquid blending** of A D E and K
- 2012 constructed a purpose built dry Vitamin **pre-mix facility** in Chicago
- **Team of experts** in nutrient formulation and liquid and dry market forms



## State-of-the-art blending facility

### ○ Food Safety

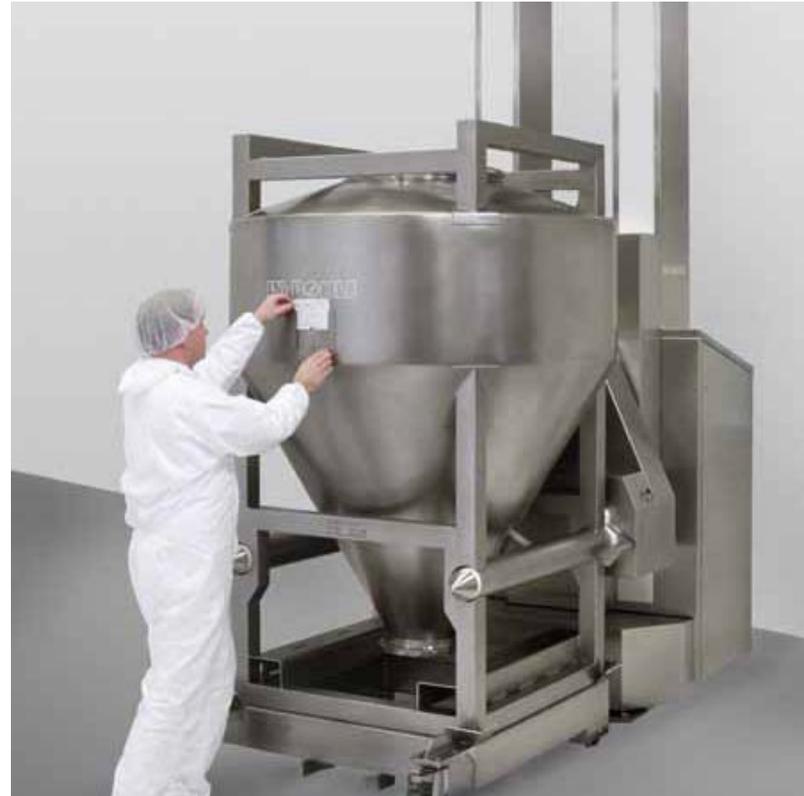
- GFSI Certified
- Segregation and zoning control
- Full Traceability

### ○ Flexibility

- Versatile processing and blending capabilities
- Liquid batch sizes from 10 to 400 Litres
- Dry blends from 1kg to 4,000kg
- Packaging in totes, super-sacks, bags in a box, or small subdivides



## State-of-the-art blending facility



## State-of-the-art blending facility



# State-of-the-art powder processing capabilities



## Vitamin summary

- Vitamins are essential for sustaining life
- Prinova can help customers to solve many challenges in how best to incorporate vitamins into their products
- Low cost vitamin ingredient input
- USA production of blends and D Vitamins
- Facility audited and approved by BRC
- Work with Prinova to allow us to help solve your vitamin related challenges!



## Keep up to date with Prinova

- Visit us across the globe
  - Ingredient Marketplace – USA
  - IFT – USA
  - FIBO – Germany
  - BodyPower – UK
  - SupplySide – USA
  - Vitafoods – Switzerland
  - Food Ingredients & Health Ingredients – EU
- Subscribe to receive email updates
  - [prinovaeurope.com/subscribe](http://prinovaeurope.com/subscribe)
  - Market Report – every other month



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