Chrysal

Roots of Chrysal

- Pokon founded in 1929
- Chrysal started in 1949
- Distribution in 40 countries
- Production facilities in Holland, Colombia, Ecuador, Kenya and Japan
- Leader in innovation of post harvest products
- Invented the world's first commercially used flower food
- Introduced vase life guarantee concept at UK retail

Roots of Chrysal

1993 The organisation moves to Gooimeer in Naarden, The Netherlands.

2007 Pokon & Chrysal merges with Vitabric, a Swedish flower food company.

2007 Pokon divested and focus on cut flower flower care.

Headquarters in Naarden

Company profile

- Sales € 45 million
- 225 staff in 13 countries
- 20% of sales generated by new products
- # 1 in cut flower treatment
- Certification within the total chain: ISO/ETI/SEDEX

Global presence, local people

Subsidiaries in USA, UK, France, Germany, Sweden, Japan, China, Colombia, Ecuador and Kenya.

Sales representatives in Canada, Russia, India

Distributors worldwide.

Global presence, local people

2007: opening of Chrysal office in Colombia:

- production, sales and technical consulting.

2009: opening of Chrysal office in Kenya:

- production, sales and technical consulting.

2011: acquisition of Everflor - Ecuador:

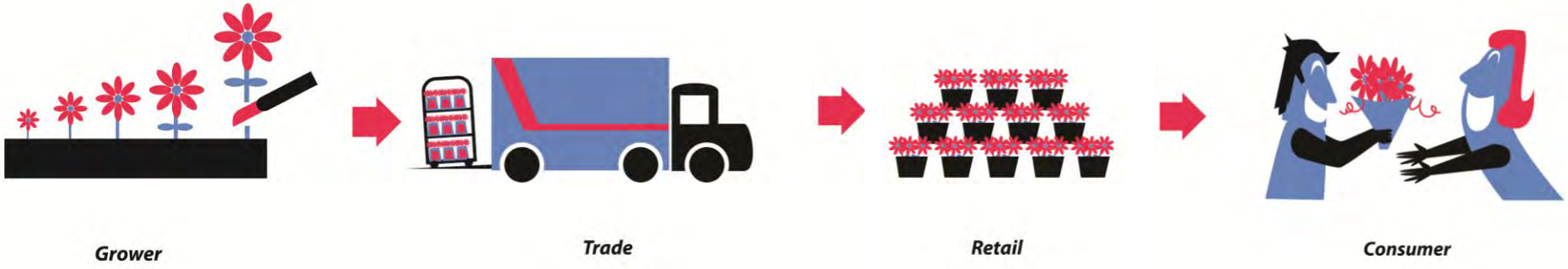
- strengthening and complementing Chrysal.

Optimal quality means optimal treatment

Chrysal developed products for every problem and every flower type.

At every place in the chain optimal treatmennts are very important!

Total Chain Management

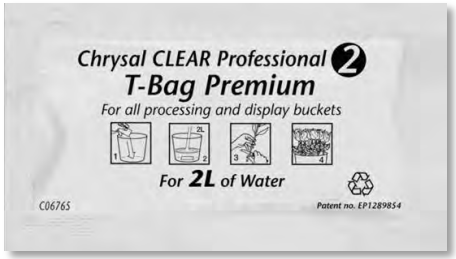


Post harvest Treatments

Re-hydration

Professional T-bags

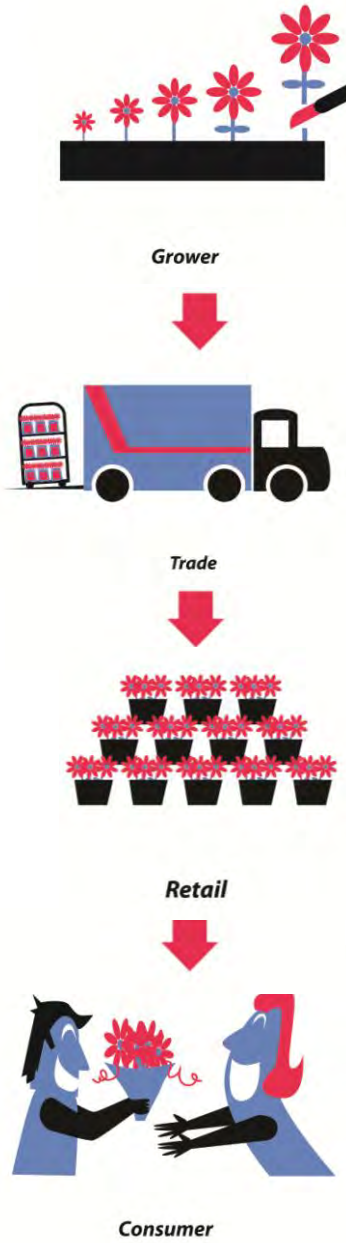
Cut flower food sachets



Customer groups

Chrysal defines 4 target groups:

- growers
- bouquet makers / wholesalers
- supermarkets / florists - retailers
- consumers



Customer group: Growers

We support growers with:

- post-harvest treatment products
- technical advice on best treatment
- codes of practice

New (potential) Customer group: Breeders and propagators

We support with:

- Product information
- Samples
- Trials

Post-harvest treatments

- AVB
- AVB Booster
- BVB
- BVB Plus
- CVBN
- Ethylene Buster
- Batine

- OVB
- RVB
- RVB Clear Intensive/ GROW
- RVB Clear Intensive SW
- SVB

Post-harvest treatments

Why so many products?

- A flower crop often has specific problems
- Sometimes a product is toxic
- registration

Typical problems:

- Water uptake
- Ethylene
- Leaf yellowing
- Botrytis
- Energy

Trend QC: R&D results -> PHT's -> Code of practises (COP's) -> Checking & tracing

Basics Post-Harvest Treatments (PHT's)

- ✓ **Water balance products**
  - Oxidation/Secretions
  - Bacteria
  - Air
- ✓ **Nutritional balance products**
  - Sugars
- ✓ **Hormonal balance products**
  - Ethylene
  - Gibberellins
  - Cytokinines
- ✓ **Accurate dosing & Care (products)**
  - Dosing equipment and control
  - Care tools and instructions

Trend QC: Post-Harvest problems -> R&D results -> PHT's

- ✓ **Water balance**
  - Oxidation/Secretions
  - Bacteria, Fungi
  - Slime
  - Air
- ✓ **Nutritional balance**
  - Sugars
- ✓ **Hormonal balance**
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Post-harvest problems

- ✓ Water balance
  - Oxidation/Secretions
  - Bacteria, Fungi
  - Slime
  - Air
- ✓ Nutritional balance
  - Sugars
- ✓ **Hormonal balance**
  - **Ethylene**
  - **Gibberellins**
  - **Cytokinines**

Ethylene

danger & challenge

- ✓ In sensitive cut flowers ethylene may affect
  - Flower senescence, cutting stages
  - Leaf yellowing
  - Stem growth
  - Abscission of buds, flowers and leaves
  - Flower malformation
- ✓ The effect of ethylene strongly depends on
  - Sensitivity of the cut flower
  - Ethylene concentration (endogene & exogene)
  - Exposure time & temperature
  - Dosage & hygiene solutions
  - Age concentrated solution & composition
  - Commercial product or home made brew
  - ROI and repeated use (pollution), ‘Chrysal Booster’

Evolution flower development at the consumer

Water - Vodka – Aspirin+sugar- Chrysal

water

vodka

aspirin+sugar

Chrysal

Post-harvest treatments

Ethylene

- AVB
- Ethylene Buster
- Capt'R

Yellowing

- BVB
- BVB Plus
- SVB

Botrytis

- Batine

Water uptake

- OVB
- RVB
- AVB Booster
- CVBN
- RVB Clear Intensive/ GROW
- RVB Clear Intensive SW
- Solution initial

Tests at UF Gainsville, USA

The Beauty of Chrysal

Lilium 'White Stargazer', day 8

Water

Chrysal AVB

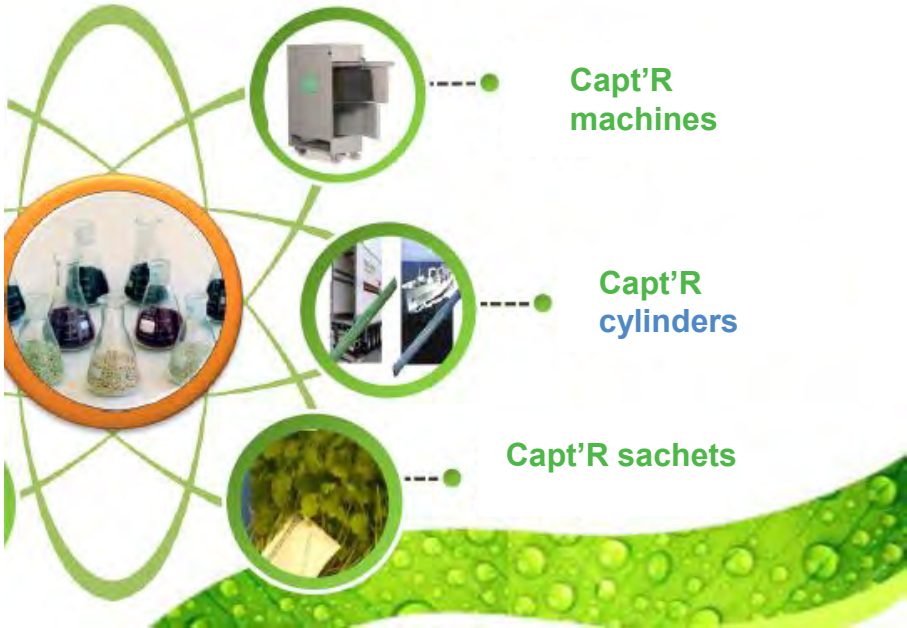
Chrysal BVB

Chrysal AVB + BVB

Chrysal Capt'R

- Air purification technology based on Potassium permanganate pellets:

- Product comes in three varieties:
  1. Chrysal Capt'R Sachets
  2. Chrysal Capt'R Cylinders
  3. Chrysal Capt'R machines

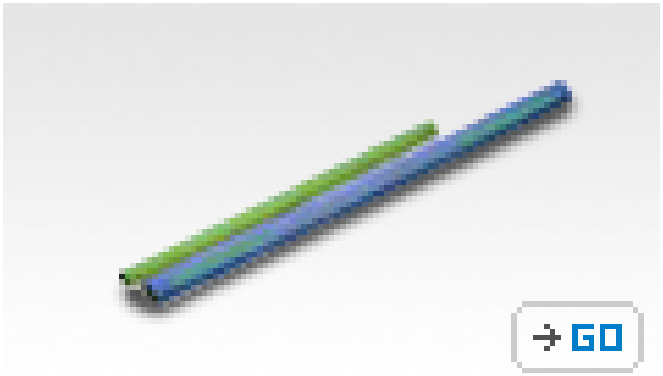


1. Chrysal Capt'R: Sachet

- A continuous protection against external ethylene: from packing line to store
- Made of tear resistant and waterproof DuPont Tyvek material
- Approved for contact with fresh produce
- Sachets are inspected through artificial vision techniques to guarantee its tightness
- Ensures higher-quality at arrival

2. Chrysal Capt'R: Cylinders

- Keeps atmosphere free of ethylene
- Easy to apply in trucks, containers and ship holds
- The number of filters required is based on transport time, type of produce and transport conditions.



3. Chrysal Capt'R: Machine

- Removes ethylene
- Developed for use in cold stores
- Removes bad odours

Test results

Photo day 8/22
(EC09841; 28-05-2009)

Dendrobium ‘Big White 5N’ (pre-treated with Chrysal AVB)

Day 8 | Day 22

Control
Day 21: 1930 ppm ethylene
Flower life: 11.0 days (100%)

Day 8 | Day 22

Chrysal Capt’R sachet
Day 21: 0 ppm ethylene
Flower life: 34.0 days (309%)

Test results

Photo day 19
(EC11639)

Phalaenopsis ‘White Sensation’

Control

Flower life: 5.3 days (100%)

Chrysal Capt’R sachet

Flower life: 29.1 days (549%)

Chrysal Grow

Sales presentation by: Adinda Blokker

Algemeen

- Chrysal introduceert een nieuwe generatie voorbehandelingsmiddelen die helder en zonder geur oplost in water. Zo blijven bloemen langer mooi en wordt de distributie- en verkoopperiode verlengd.

Chrysal Grow 20 - Hydrate

- Voorbehandelingsmiddel voor o.a. Roos en Astilbe
- Verlengt de houdbaarheid tot 20% t.o.v. water
- Het gebruik van Chrysal Grow 20 is verplicht voor Astilbe en Roos (RVB of Grow 20) bij aanvoer naar de veiling.
- Lost helder op in water
- Aluminiumsulfaatvrij
- Veel zachter voor het blad
- Bevat een tracer

* Op basis van testen onafhankelijk verificatie onderzoek Flora Holland

Grow 20 - Effecten

- Stimuleert water opname, voorkomt bent-neck
- Maakt een verlengde distributie en verkoopperiode mogelijk
- Vermindert bloemuitval
- Behoudt de kwaliteit van bloemen
- Verstopt leidingen of doseerpomp niet

Grow 20 Testresultaten

- Onafhankelijk verificatie onderzoek Flora Holland

Dag 7 - Water

Dag 7 – Chrysal Grow 20

Grow 30 - Condition

- Voorbehandelingsmiddel voor o.a. Syringa en roos
- Aluminiumsulfaatvrij
- Verlengt het vaasleven tot 25% t.o.v. water
- Geeft een beperkte hoeveelheid voeding, conditioneert bloemen
- Houdt bloemen mooi op kleur
- Lost helder op in water
- Verstopt leidingen of doseerpomp niet
- Bevat een tracer

Grow 30 Testresultaten

Dag 7 - Water

Dag 7 – Chrysal Grow 30

Chrysal Grow 40 - Boost

- Voorbehandelingsmiddel voor o.a. Protea en Leucospermum.
- Verbetert het vaasleven tot 30% to.o.v. water.
- Geeft een hoge concentratie voeding, zodat bloemen mooi openkomen.
- Lost helder op in water.
- Chrysal Grow 40 is een van de verplicht middelen voor Protea bij aanvoer op de veiling.
- Verstopt leidingen of doseerpomp niet.
- Bevat een tracer.

Grow 40 Testresultaten

Dag 7 - Water

Dag 7 – Chrysal Grow 40

Chrysal Grow Bloemenlijst

Het verzorgingsadvies van Chrysal per bloemsoort

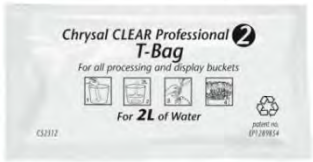
Bloemenlijst	GROW 20	GROW 30	GROW 40
A			
Astilbe	●		
C			
Chrysanthemum	●		
Cymbidium	●		
F			
Forsythia		●	
G			
Gypsophyla *	●		
L			
Leonitis leonorus		●	
M			
Matthiola	●		
P			
Phalaenopsis		●	
Protea			●
Prunus		●	
R			
Rosa **	●	●	
S			
Strelitzia	●	●	
V			
Viburnum		●	

* met uitzondering van 'My Pink'
** keuze uit RVB, Grow 20 of Grow 30

● Chrysal advies
● Verplicht bij veilingaanvoer

Professional products

- Professional 1
- Professional 2 Classic
- Professional 2 Concentrated
- Professional 2 Concentrated Soft Water
- Professional 3
- Professional 3 powder
- Professional Glory
- Professional Cleaner
- Professional 2 T-Bag
- Premium T-Bag
- L&A T-Bag



Consumer products

- Universal liquid stick
- Rosa liquid stick
- Fairtrade liquid stick
- Universal liquid consumer bottle
- Universal powder sachet
- Rosa powder sachet
- L&A powder sachet
- Bulbosus powder sachet
- Tulipa powder sachet
- Narcissus powder sachet
- Chrysanthemum powder sachet
- Syringa powder sachet
- Bouvardia powder sachet

Sunflowers

Leafshine & Pot plant products

- Leafshine aerosol
- Leafshine Concentrate
- Aqua Pad
- Ethylene Buster
- Miracle Mist

Technical Consultants

We share our in-depth knowledge on cut flowers with our clients. Our team of technical consultants (TC's) provides tailor-made

- technical advice
- technical support

We have 20 TC's based around the globe.

Technical Consultants

Technical advice consists of

- audits at growers, bouquet makers, retailers and florists resulting in reports with recommendations, protocols and instructions;
- possible improvements in the processes at, and in cooperation with, a customer;
- recommendations in order to achieve the best flower quality possible.

Technical Consultants

During an audit our TC's look at:

- hygiene
- temperature and humidity
- quality of the bucket content
- flower quality
- logistics in the processing of the flowers.

Technical Consultants

Our TC team support customers with

- improving their water quality;
- optimising the cooling facilities;
- optimising handling methods;
- offering specific codes of practice;
- urgent problems with their flower quality;
- finding the best mix in the bouquets.

New Product Development

New products are developed by our R&D centre in Naarden, Holland.

10 members of staff

The Ministry of Agriculture, Nature and Food Quality officially recognizes our research methods and flowering test rooms.

New Product Development

We also develop new products/concepts in cooperation with customers:

- Range of pot plant products
- Bio flower food
- Sea container trials
- Fairtrade flower food for a UK supermarket chain
- Effervescent flower food tablet for a UK supermarket chain

Joint research

Chrysal regularly links with a customer(s) to set up a research project or trial with a university, biotech companies or research station worldwide.

Vase life trials

Our R&D centre in Naarden uses vase life rooms to monitor flowers and the effect of different formulas.

Test results are standardized and can be compared to results of standardized trials at auctions and universities worldwide.

These vase life rooms are also used for vase life trials for our customers.

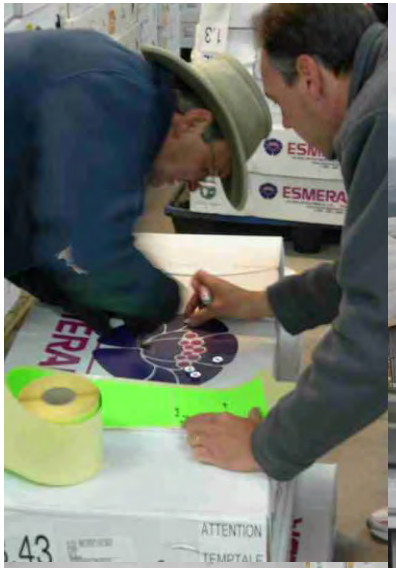
Code of Practice

A Code of Practice is necessary when working with changing workforces.The right flower care in every stage of the flower chain ensures top quality and minimal waste.

A Code of Practice offers practical support for optimal cut flower care. They give information about:

- recommendations for a specific crop or bouquet, for example post-harvest treatments for tulips;
- recommendations for specific customers and activities, for example for the bouquet maker and the supermarket.

International product flow



packing, precooling, storing & checking

Reducing 'waste' in the chain

The main target of Chrysal is to lengthen vaselife. This keeps customer satisfaction high and reduces waste in the chain.
We help our customers to realize longer vaselife with:

- (technical) advice
- protocols to create optimal conditions
- flower care solutions for every stage in the flower chain

Chrysal Cares

For 2012-2013 Chrysal focuses on:

- Reducing water usage at customers (mainly growers) by demonstrating the benefits of Chrysal products:
  - Re-use postharvest water
  - Ultimate goal: Re-cycle postharvest water
- Water sampling in Kenya
- Continuing waste reduction at Chrysal.
- Introducing bio/organic products

CHRYSAL CARES

The Beauty of Chrysal

Thank you for your attention

CHRYSAL

PREMIUM FLOWER CARE