CO_2: the future of aerosol

ADF

Visit us on booth U50
Paris Expo Porte de Versailles

28 & 29 January 2025

Budé & Me

- 40 years machine building
  One-of-a-kind
- 20 years in whipped cream aerosols
  Global market leader
- 2 years in “spreading the word”

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CO_2: the future of aerosols

- There is no denying it is happening
- Technology will be critical in the transition
- Work is needed

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Who is..

using **CO2 as propellant?**

planning to use **CO2 as propellant?**

familiar with “Shaking” as a technology to make aerosols?

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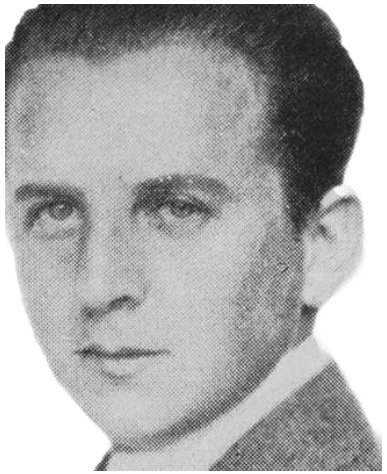
Over the years



1927

Erik Rotheim, a Norwegian engineer filed the patent for *the aerosol dispenser*

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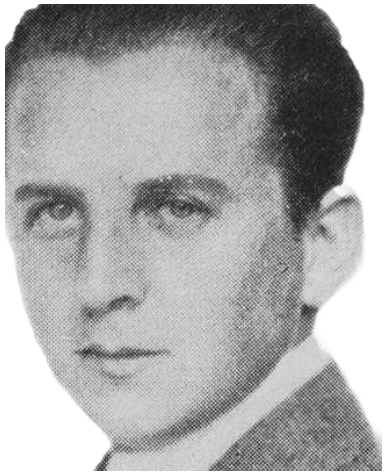
Over the years



1927

1987

The *Montreal Protocol on Substances That Deplete the Ozone Layer*

- No more CFC’s
- Move to VOC’s & Compressed gasses

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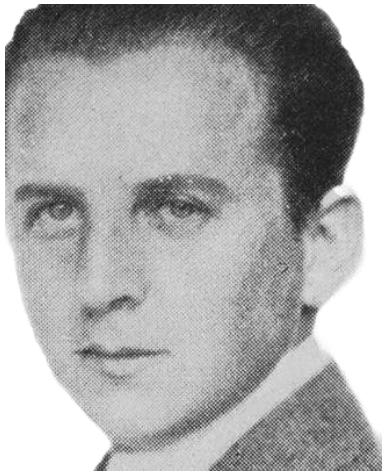
Over the years



1927

1987

CALIFORNIA AIR RESOURCES BOARD

2025

Reduces public exposure to the hazards associated with smog by banning the use of VOC’s

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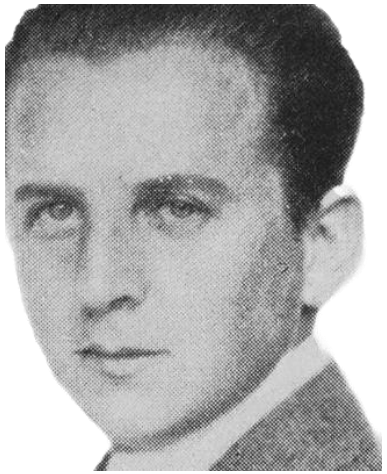
Over the years



CALIFORNIA AIR RESOURCES BOARD

?

1927 **1987** **2025** **2027**

"CO2 is gaining market share as the propellant of choice"

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Propellants Compared

	Hydro Carbons	N2	CO_2
VOC	Yes	No	No
Pressure drop	No	Yes	Some
Max Pressure	~ 7 bar	Limited by can	Limited by can
Hazardous	Yes	No	No
Reacts	No	No	Water
Solvability	Yes	No	Yes
Temperature drop	Yes	No	No

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The CO_2 Principle

- Sparkling water
  1. CO2 is dissolved under pressure
  2. CO2 is released when opening
  3. Headspace pressure increases after closure

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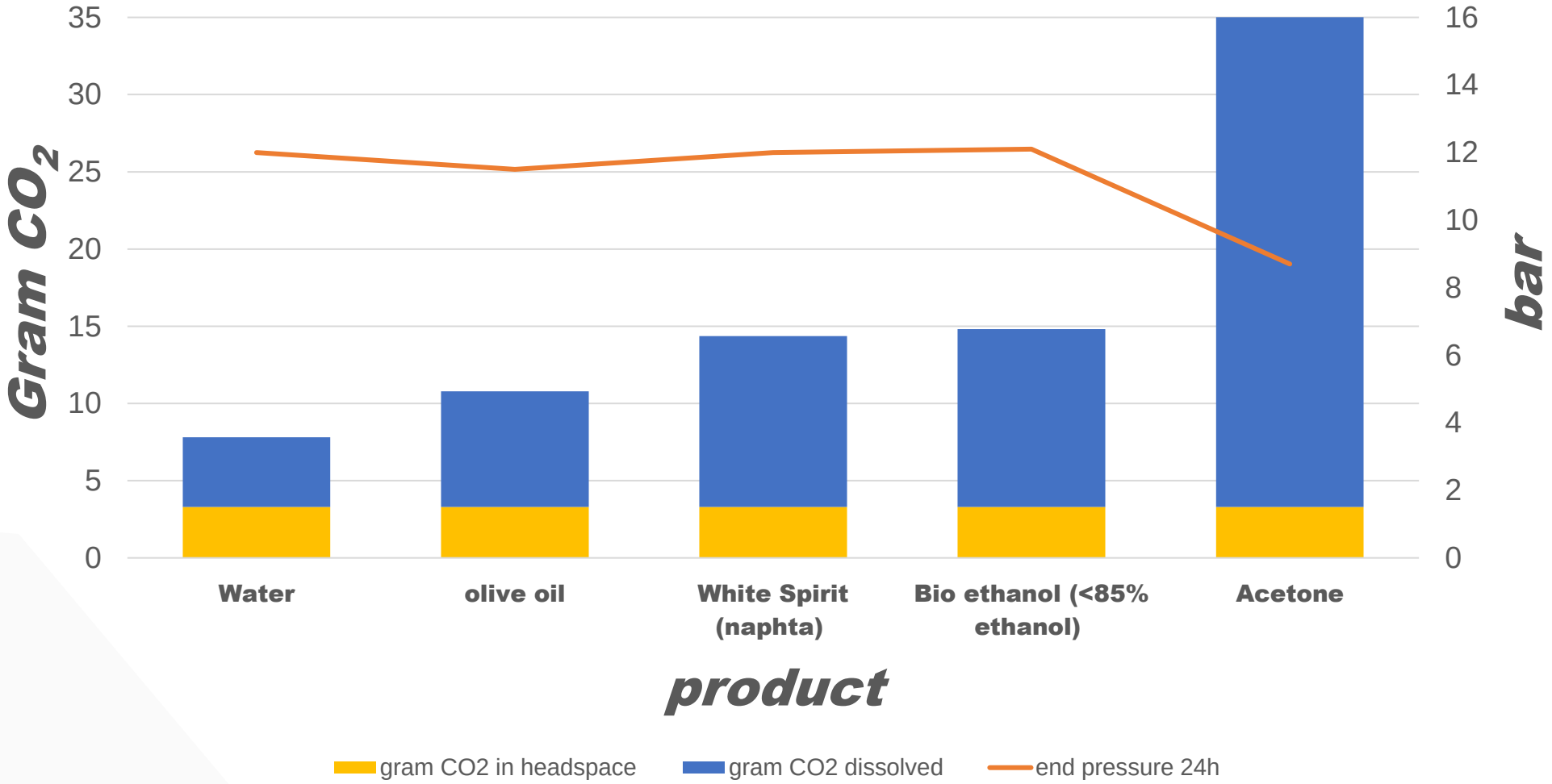
CO_2 Solvability *(with shaking)*



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Gassing Technologies

- Time-Over-Pressure
- Impact
- Time-Over-Pressure

  with *shaking*

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Compared

	T-O-P	Impact	Shaking
Fill pressure drop after gassing	Yes	Yes	No
Max Pressure	?	?	Can limit
Risk of buckling	No	Yes	No

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Shaking – technology

- Filling and crimping as usual
- Dosing grams of gas (mass-flow meter)
- Parameters to use:
  - *Gas pressure*
  - *Shake time*
  - *Shake frequency*

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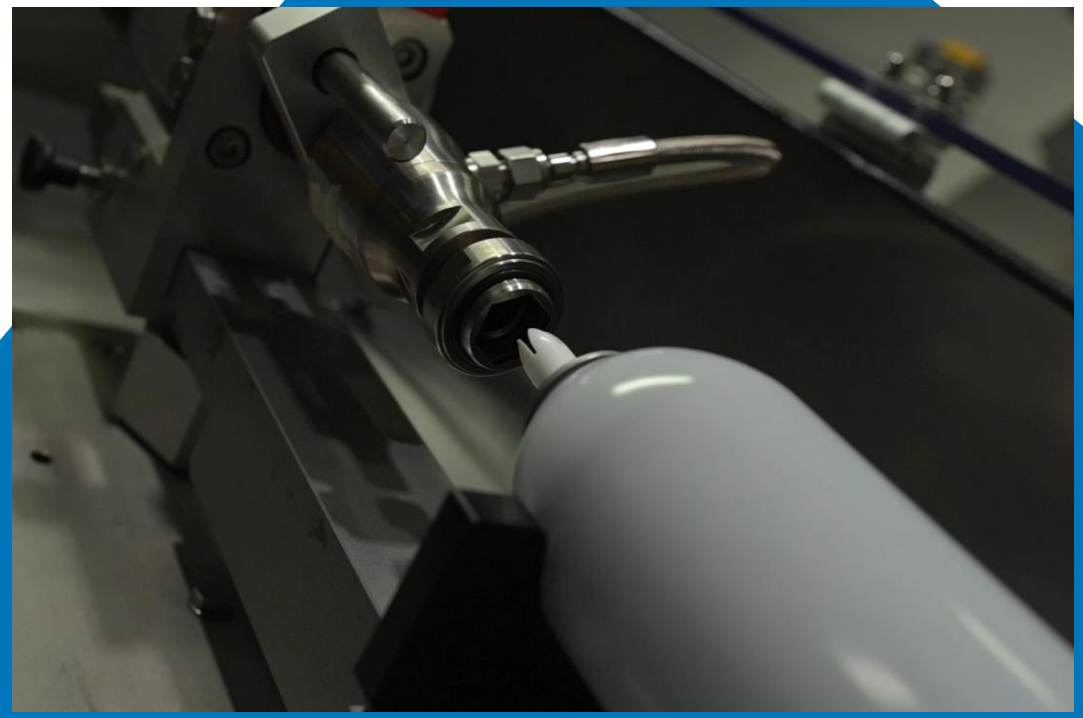
Why CO2/shaking

- More sustainable
- Safer, in control process
- Better performance
- Cost



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Why Not

- Have done it before, did not work
- Client is not asking
- Contract filler says it is not possible
- CO2 reduction?
- End product is different
- Market will not accept
- I need LPG as solvent
- It’s not possible
- ..

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Approach

- Max CO_2 at certain pressure
- 50C pressure
- Empty the can
- Formulation
- Valve & Actuator
- Market introduction

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Together

- Gassing technology
- Manufacturing knowledge
- Component expertise
- Formulation knowledge

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Gas shaking Equipment

Designed to last, and proven over the last 20 years

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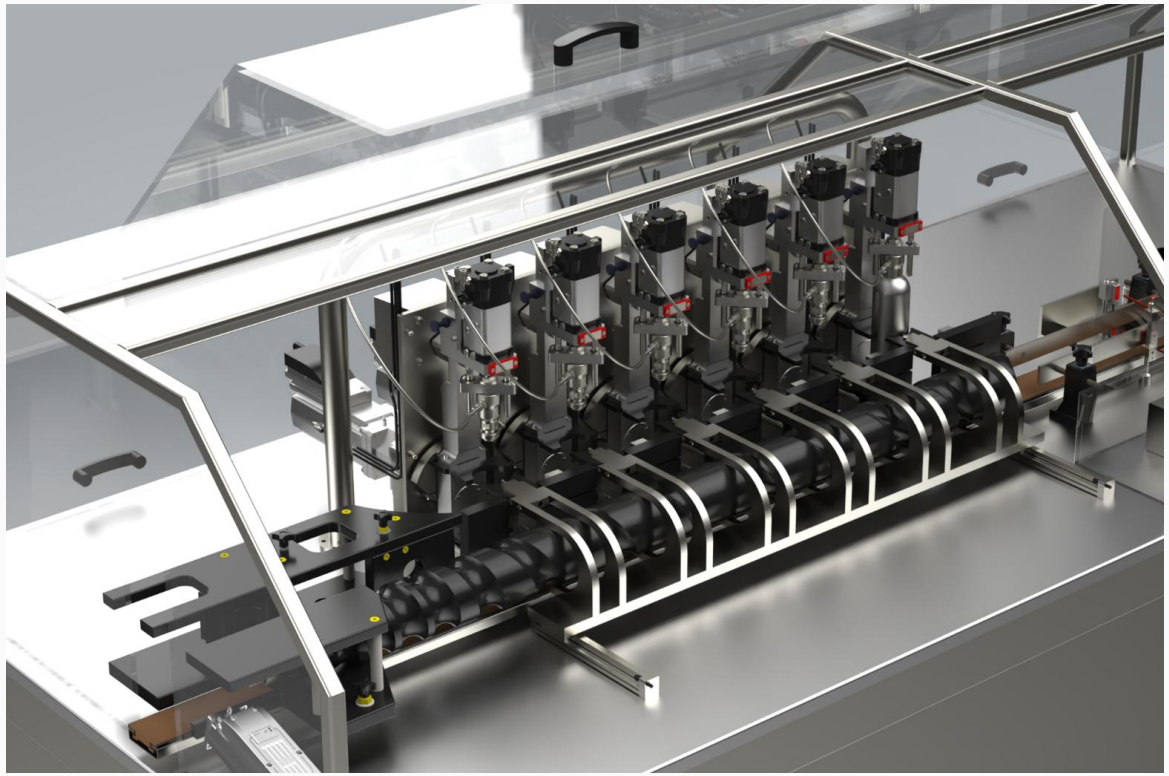
From 5 to 50 cpm



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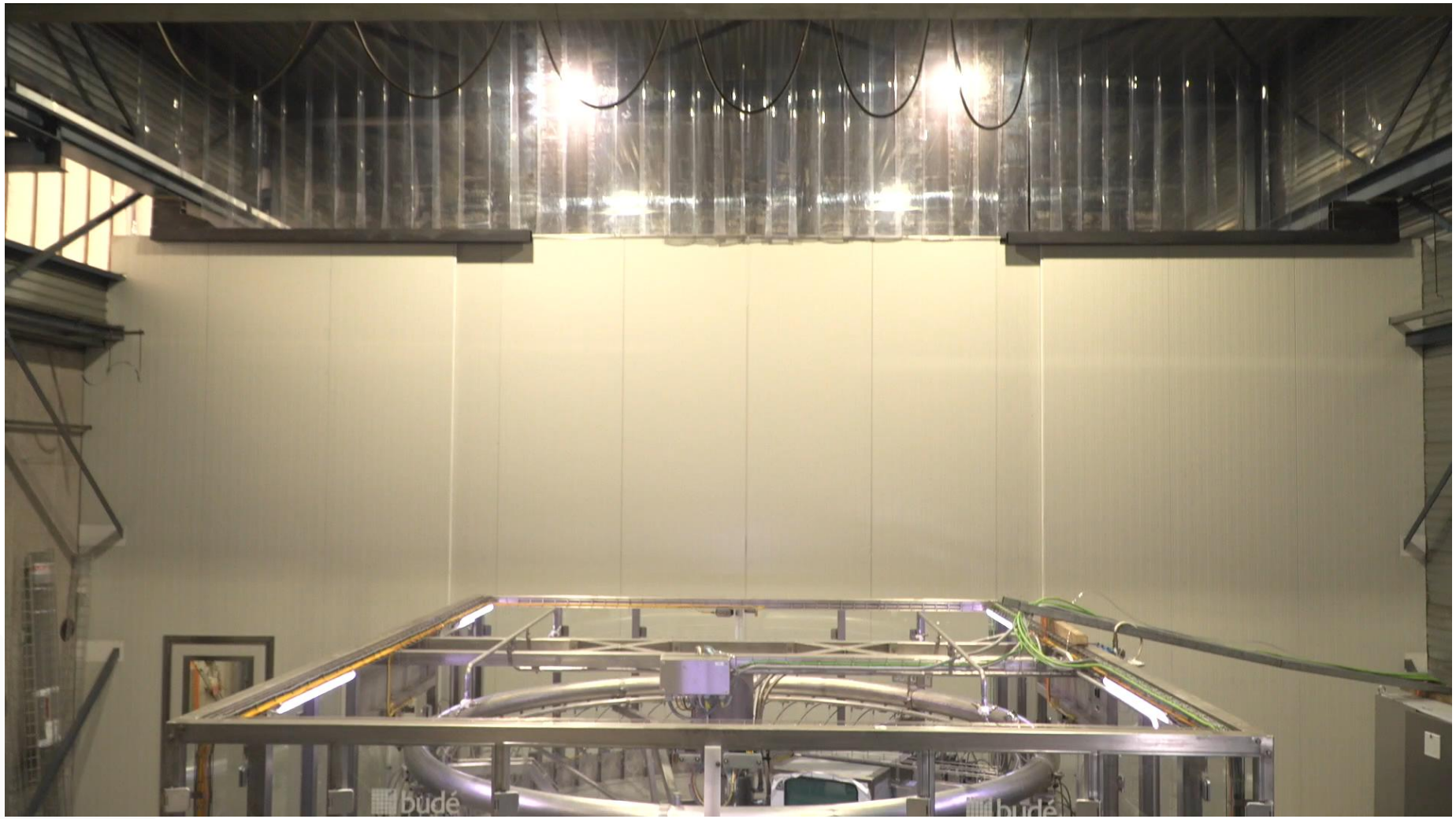
Up to 300 cpm



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Applications

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CO_2 is happening!

- But work is needed!
- The shaking technology will be instrumental in the transition

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The innovation that shakes your business

Thank you!

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the future
of aerosol

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