

OPLEIDING EMULGATOREN & ENZYMEN UNIFA

■ VERENIGING VAN BELGISCHE FABRIKANTEN EN IMPORTEURS VAN GRONDSTOFFEN VOOR BAKKERIJ, PATISSERIE, CHOCOLATIERS EN IJSBEREIDERS ■

unifa







OVERZICHT

Enzymen

Emulgatoren

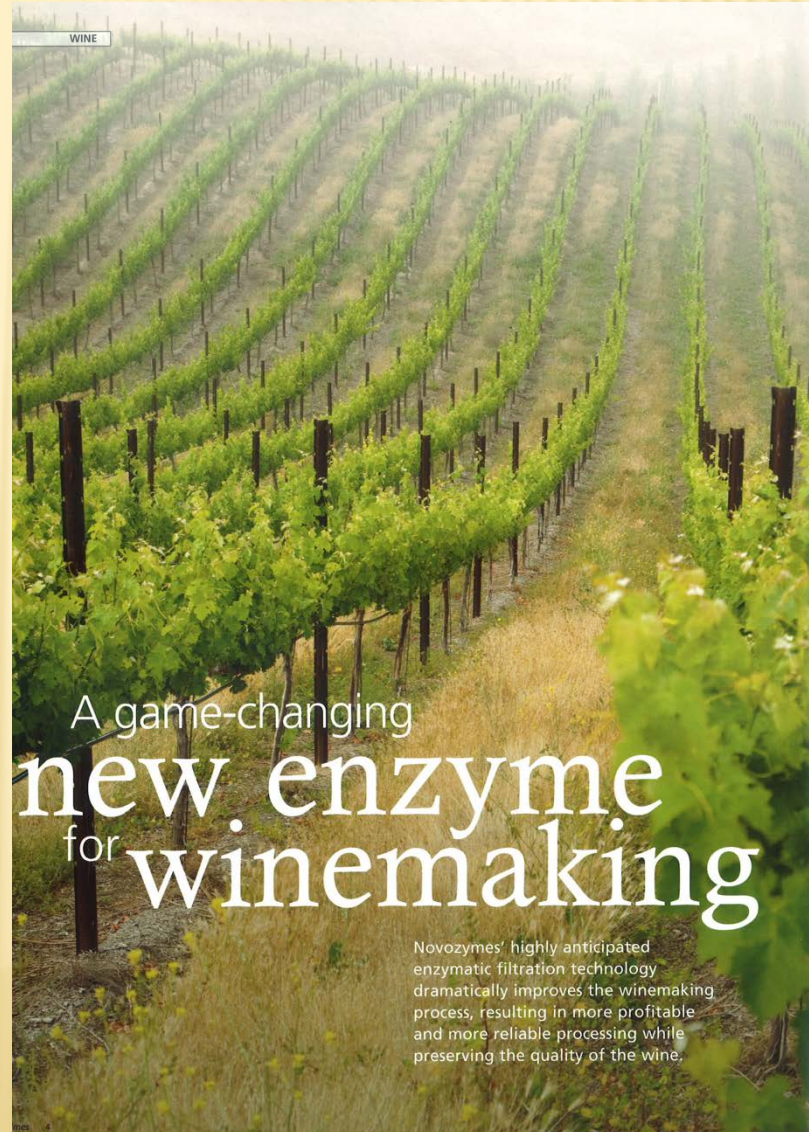
Gebruik

Functionaliteit

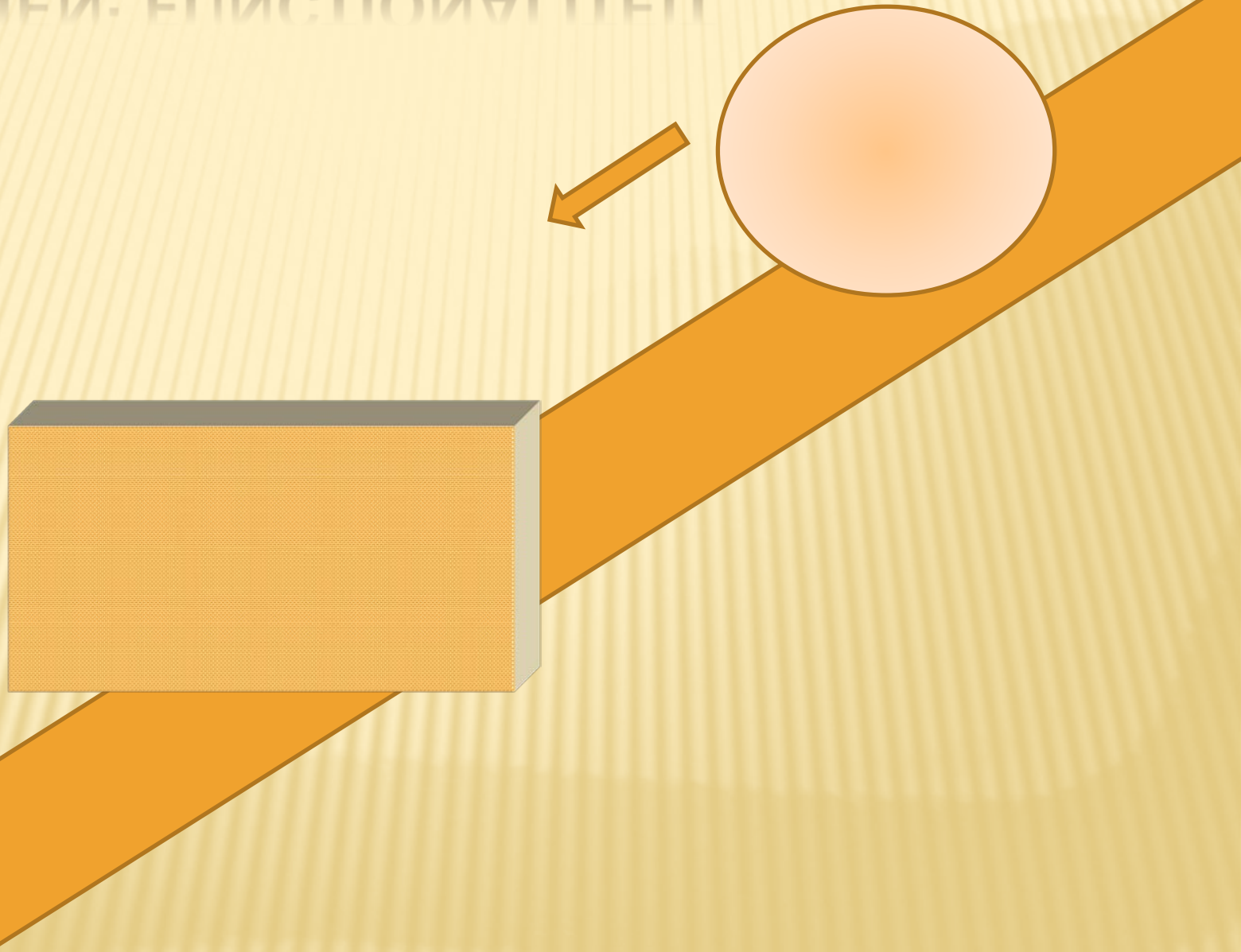
Bakkerij

ENZYMEN: GEBRUIK

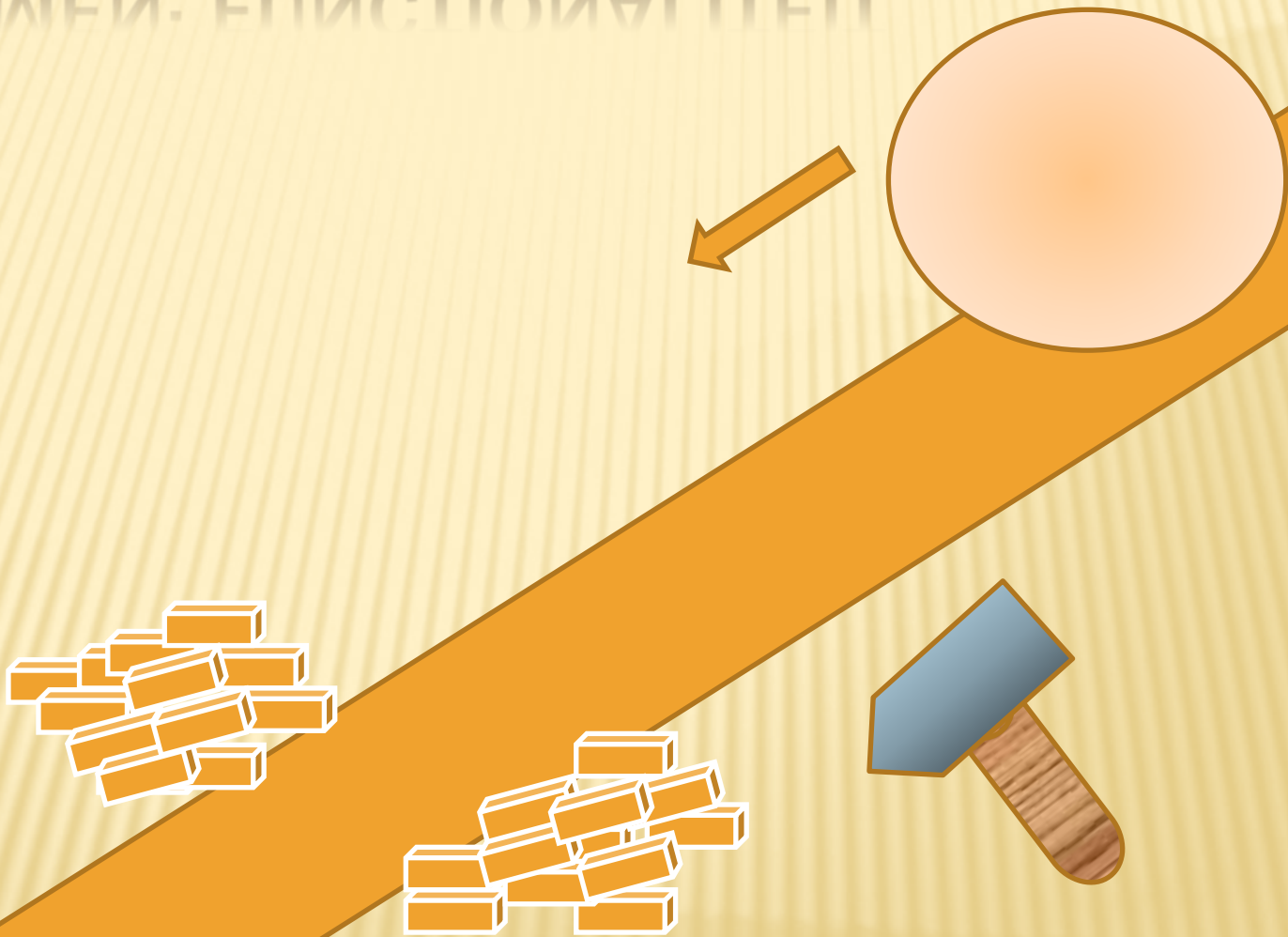
- ✘ Ons spijsvertering stelsel
- ✘ Dierenvoeding
- ✘ Wasproducten
- ✘ Wijnindustrie
- ✘ Bakkerijsector
- ✘ ...



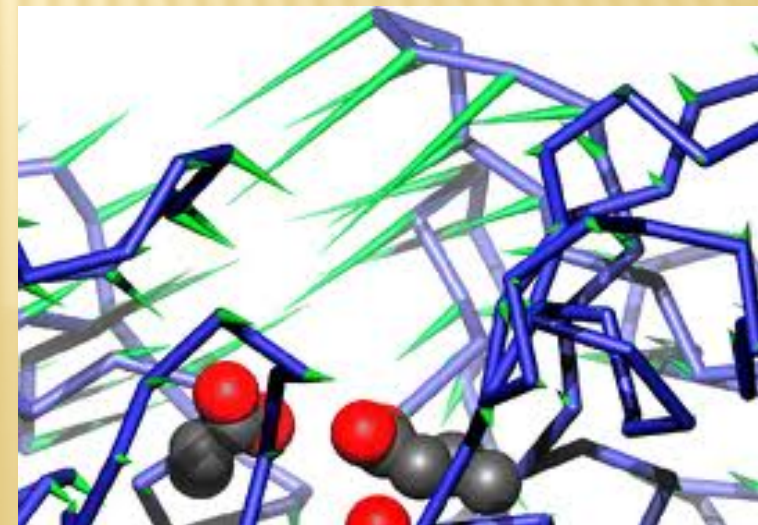
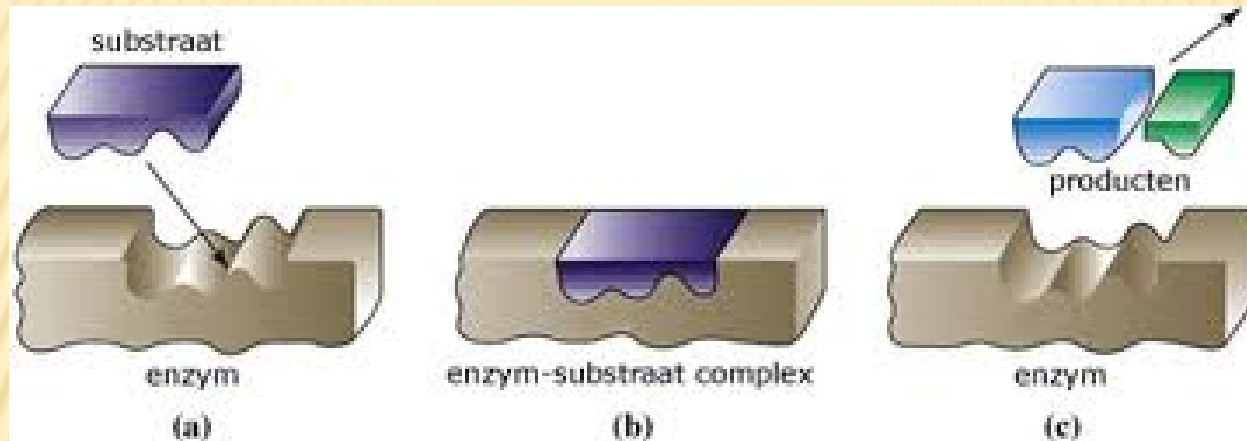
ENZYMEN: FUNCTIONALITEIT



ENZYMEN: FUNCTIONALITEIT



ENZYMEN: FUNCTIONALITEIT



ENZYMEN : BAKKERIJ

- × Amylases
- × Xylanases
- × Oxidases
- × proteases
- × Lipases
- × ...
- × Tarwe
- × Soya bloem
- × Desem/Mout
- × Bakmiddel



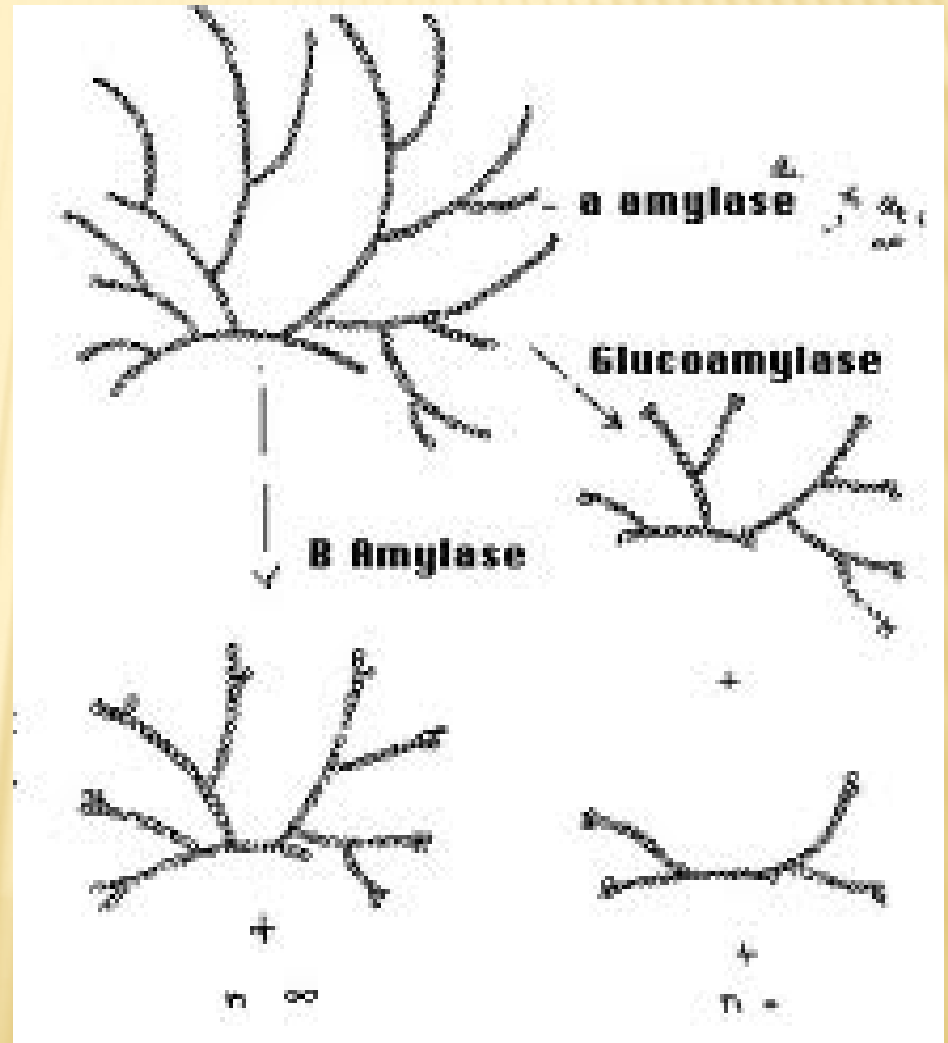
ENZYMEN : BAKKERIJ

Enzym: amylase (types)

Substraat: zetmeel

Producten:

Gevolg:



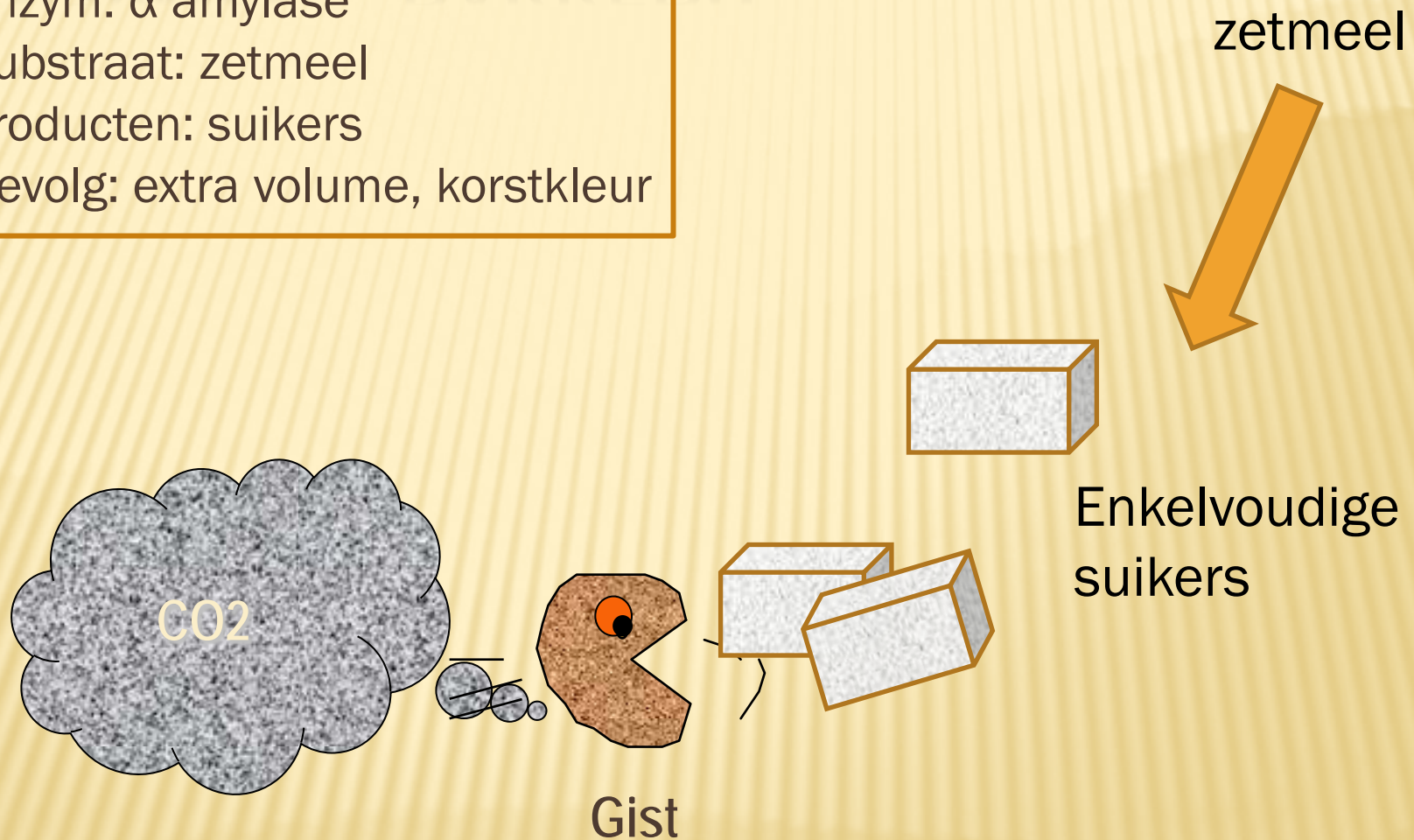
ENZYMEN : BAKKERIJ

Enzym: α amylase

Substraat: zetmeel

Producten: suikers

Gevolg: extra volume, korstkleur



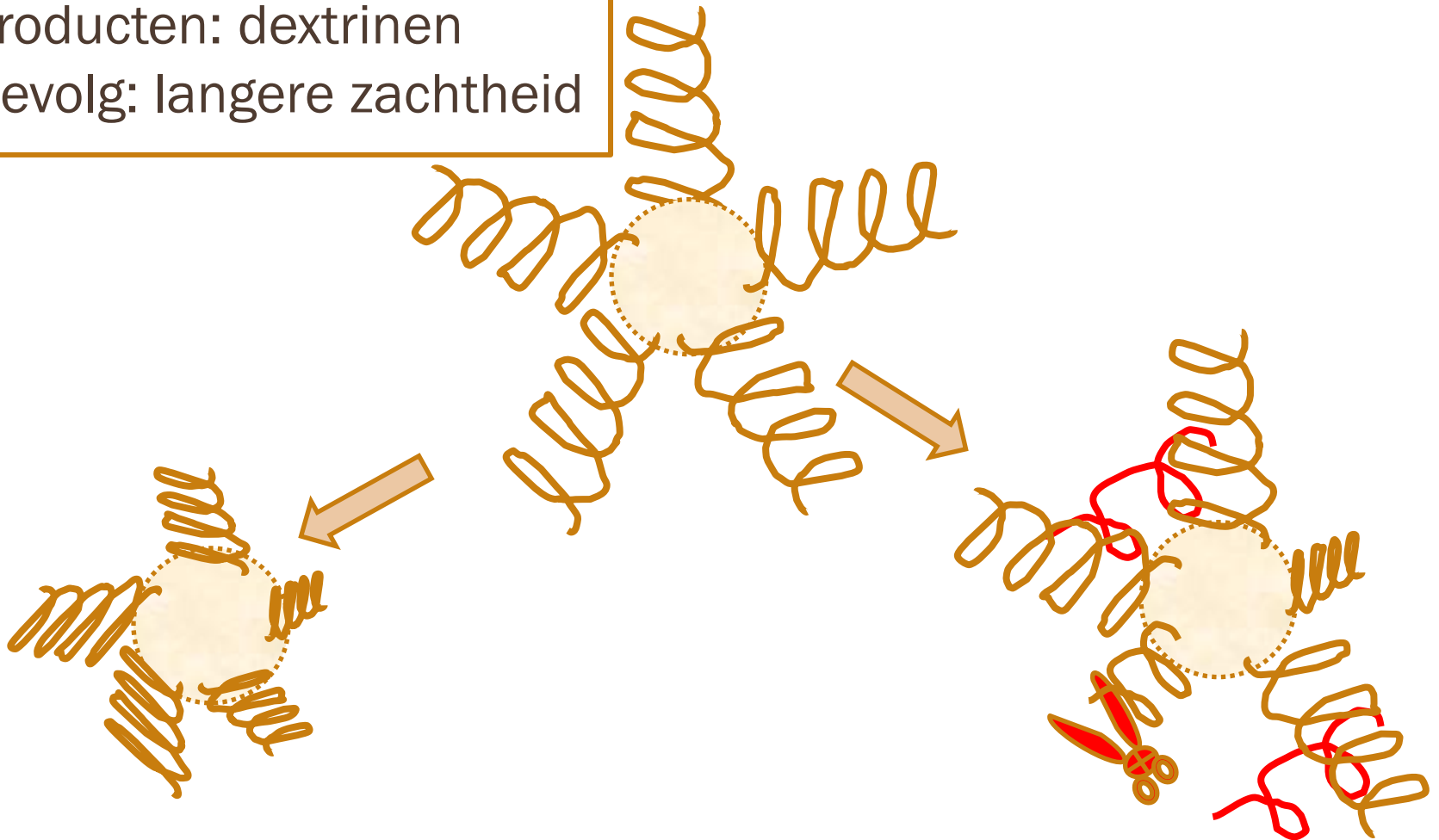
ENZYMEN : BAKKERIJ

Enzym: amylase (fresh)

Substraat: zetmeel

Producten: dextrinen

Gevolg: langere zachtheid



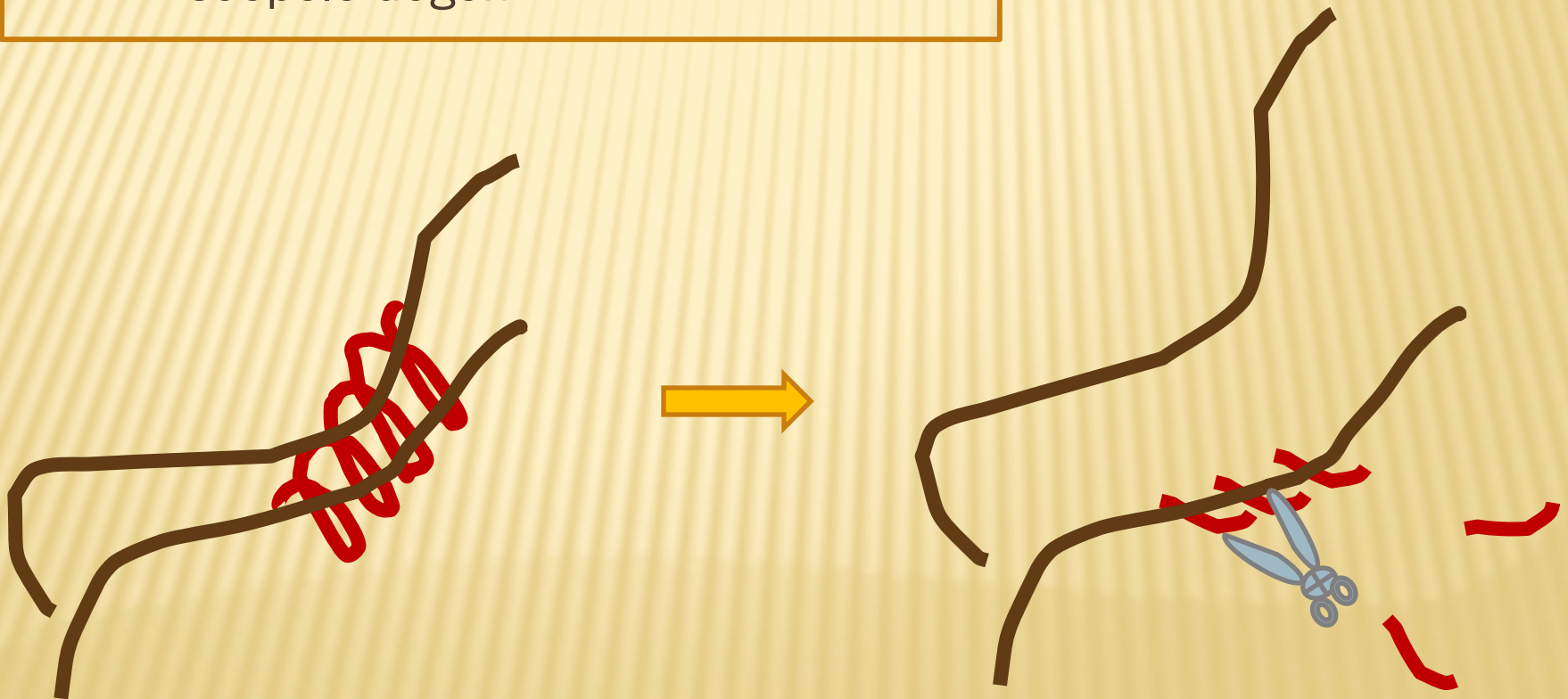
ENZYMEN : BAKKERIJ

Enzym: xylanase

Substraat: pentosanen

Producten: pentosaanstukjes

Gevolg: volume (extra beschikbare gluten)
soepele degen



ENZYMEN : BAKKERIJ

Enzym: oxidases (GOX, HOX)

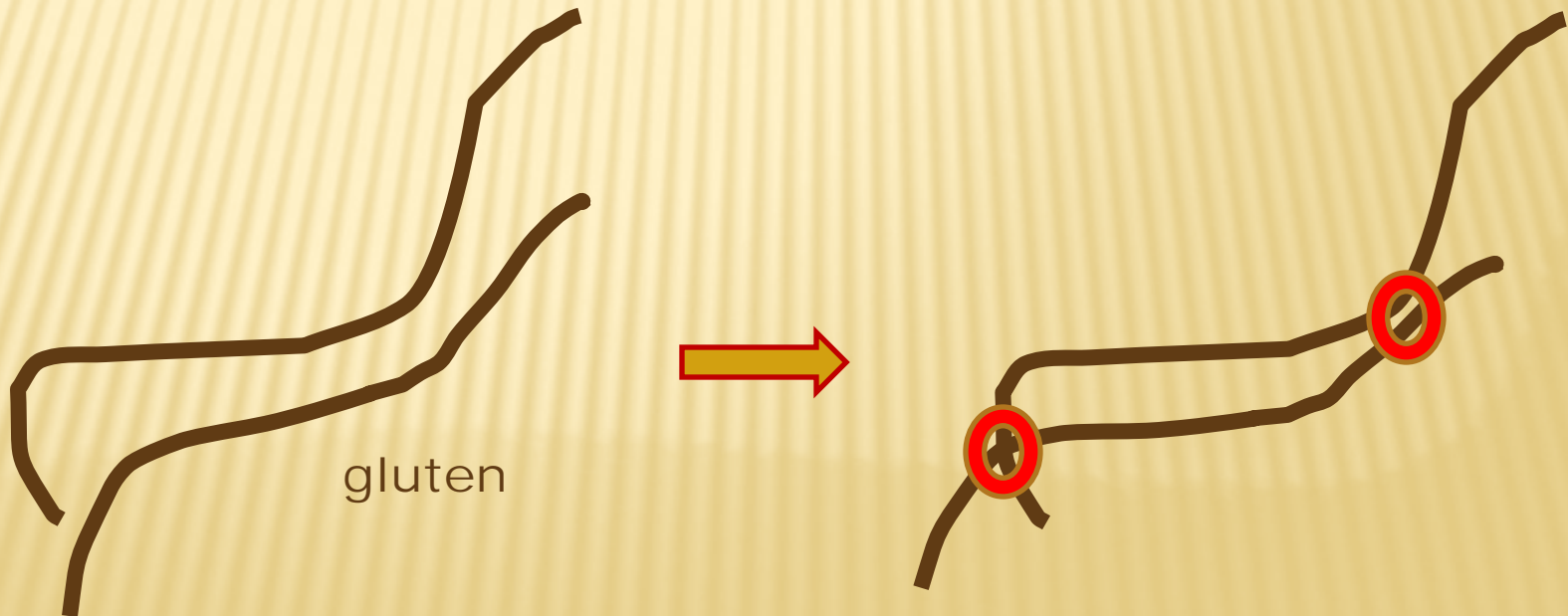
Substraat: suikers → gluten

Producten: gluten verknoping

Gevolg: volume

vastere, drogere degen

opgelet voor ranzigheid!



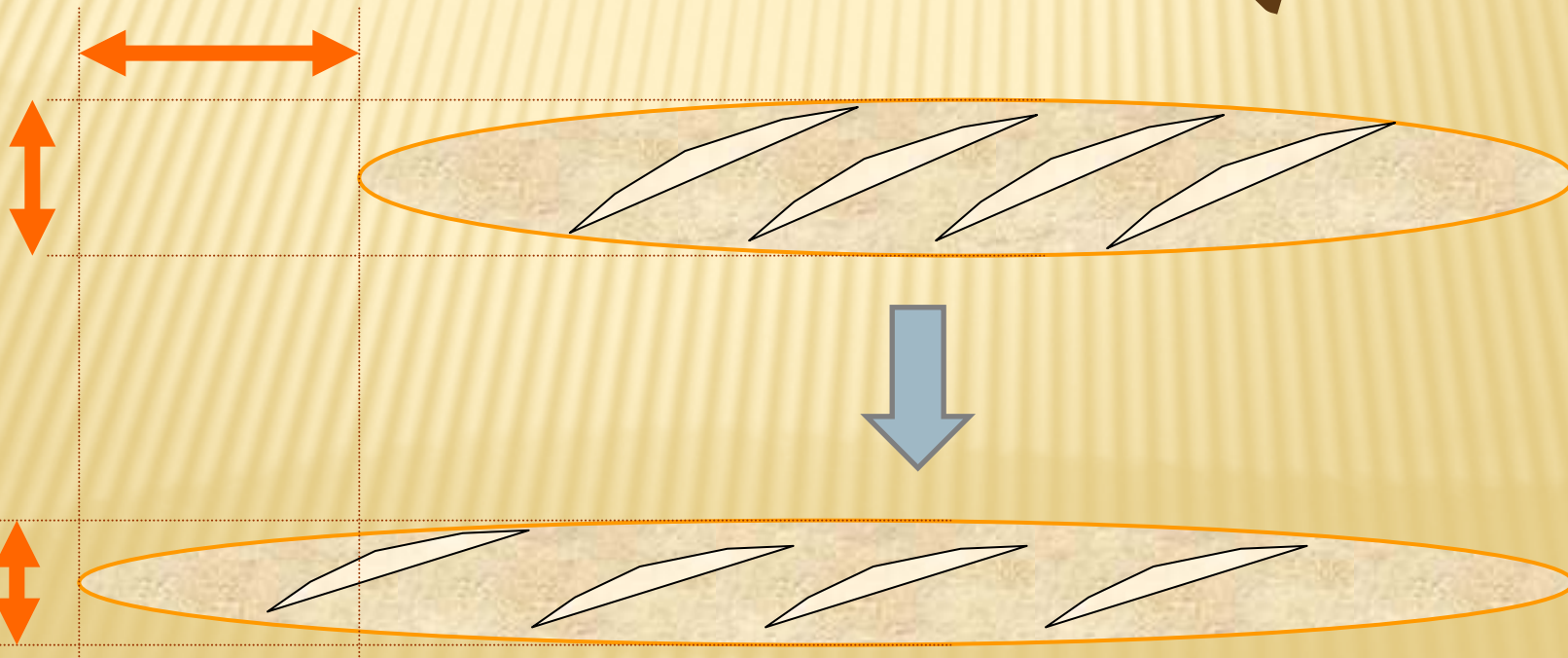
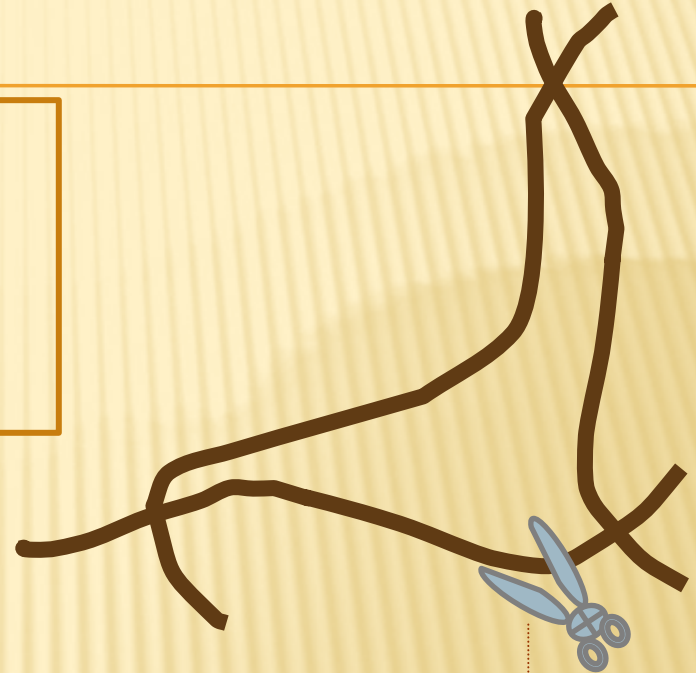
ENZYMEN : BAKKERIJ

Enzym: protease

Substraat: gluten

Producten: versoepeld glutennetwerk

Gevolg: soepelere degen



ENZYMEN : BAKKERIJ

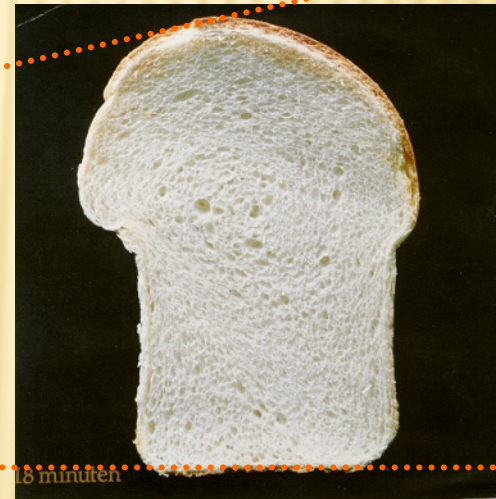
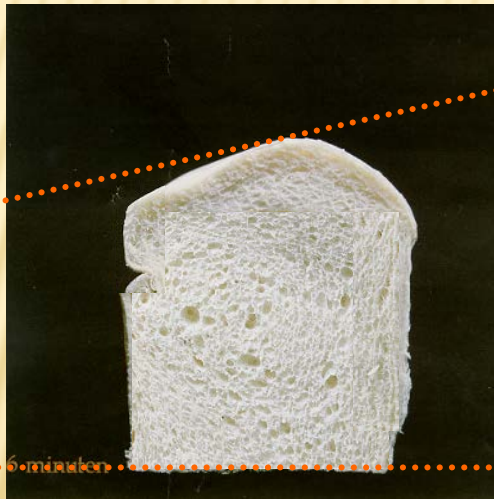
Enzym: lipase

Substraat: vetten

Producten: vetfracties met emulgatorfunctie

Gevolg: volume

opletten voor ranzigheid !



Met lipase

ENZYMEN : BAKKERIJ

Tarwe		β amylase
		α amylase bij schot of onrijpe tarwe: klevende degen / klevende boterhammen
Soya		Oxiderende enzymen: Deegtolerantie & wittere kruim
Desem/ mout		Veelvoud van enzymen: Volume, smaak
		Klevende, afslappende degen en klevende boterhammen bij overmaat
Bakmiddel		Geselecteerde enzymen: Volume , tolerantie, versheid

OVERZICHT

Enzymen

Emulgatoren

Gebruik

Functionaliteit

Bakkerij

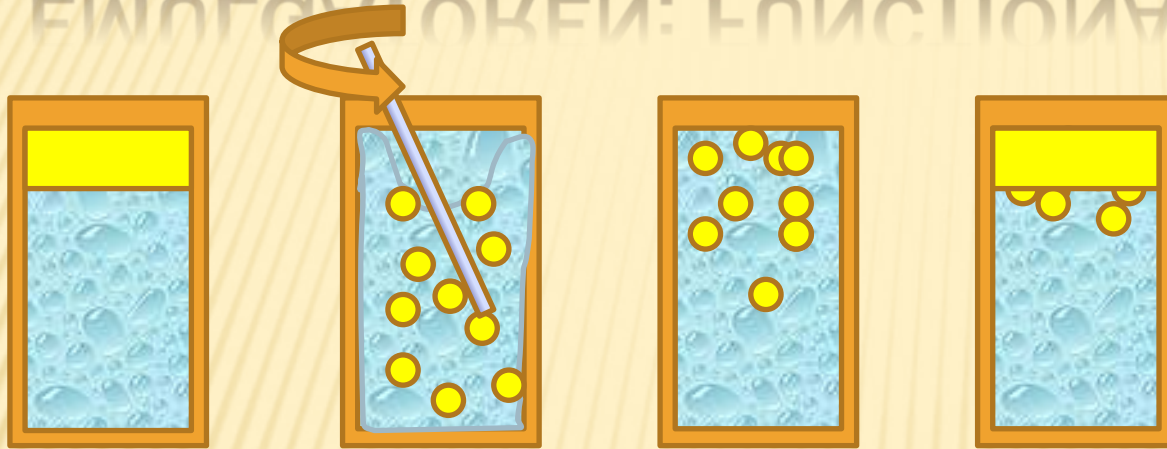


EMULGATOREN: GEBRUIK

- ✘ Melk
- ✘ Chocomelk
- ✘ Celmembranen
- ✘ Mayonaise
- ✘ Margarine
- ✘ Bodymilk & crèmes
- ✘ Badschuim
- ✘ Bierschuim
- ✘ Imitatie slagroom
- ✘ Bakkerij
- ✘ ...

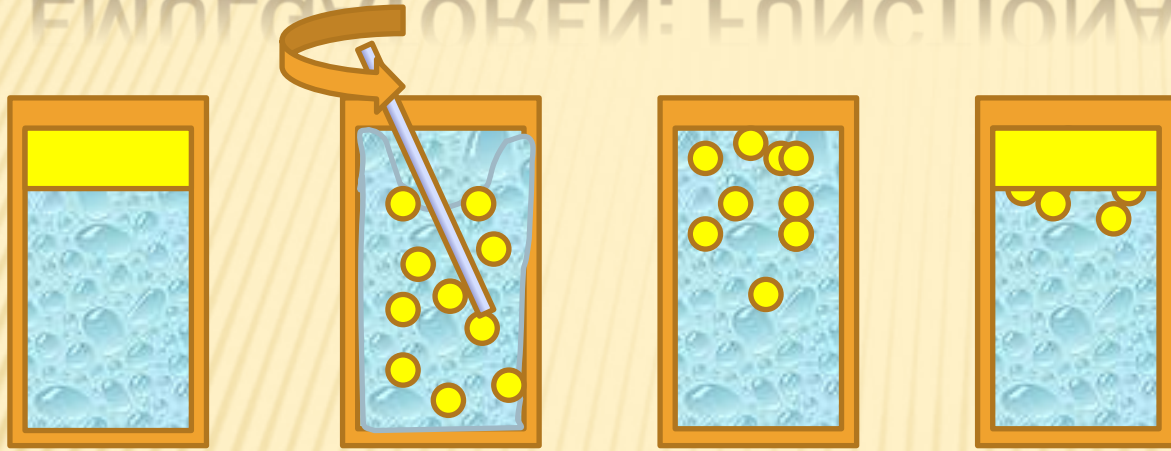


EMULGATOREN: FUNCTIONALITEIT

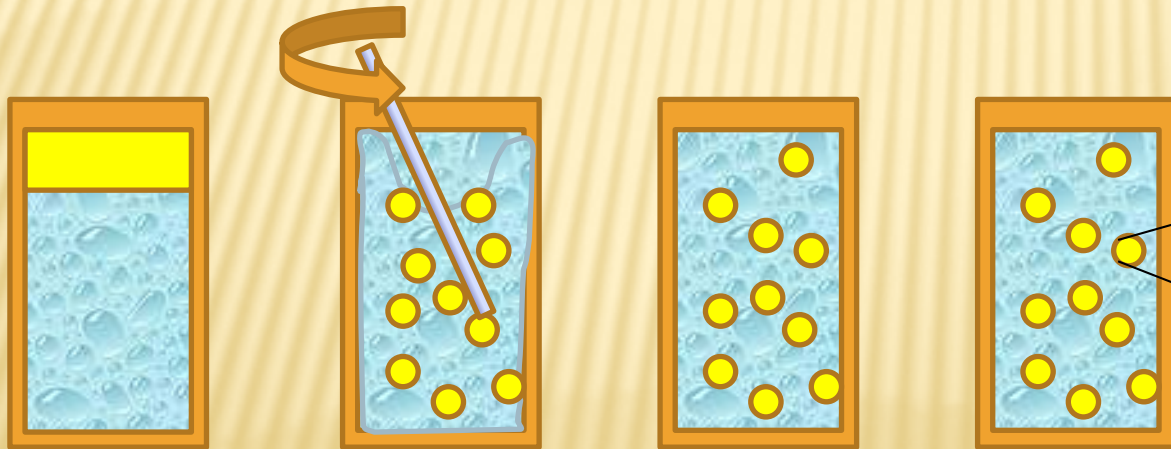


Zonder emulgator

EMULGATOREN: FUNCTIONALITEIT



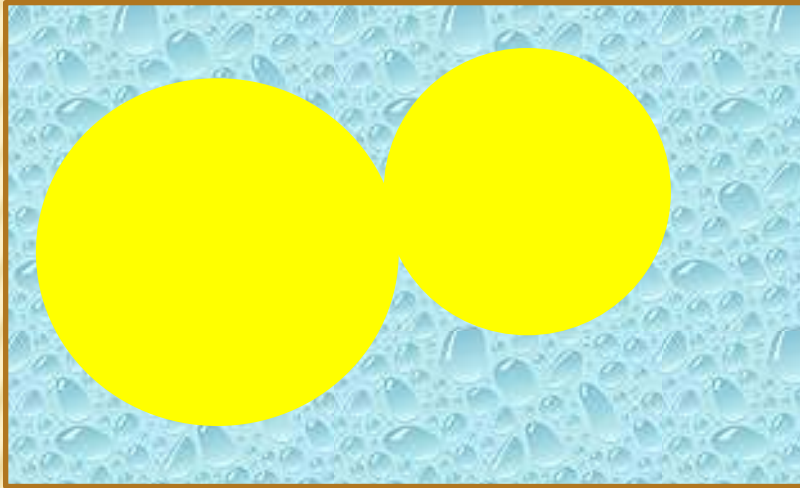
Zonder emulgator



Met emulgator

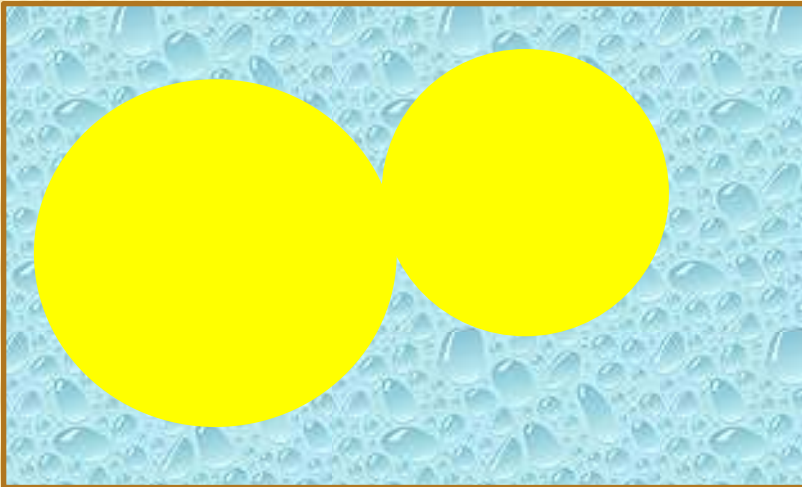


EMULGATOREN: FUNCTIONALITEIT

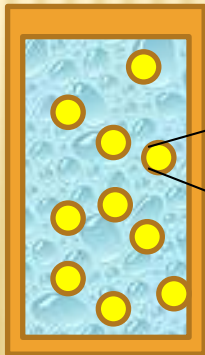
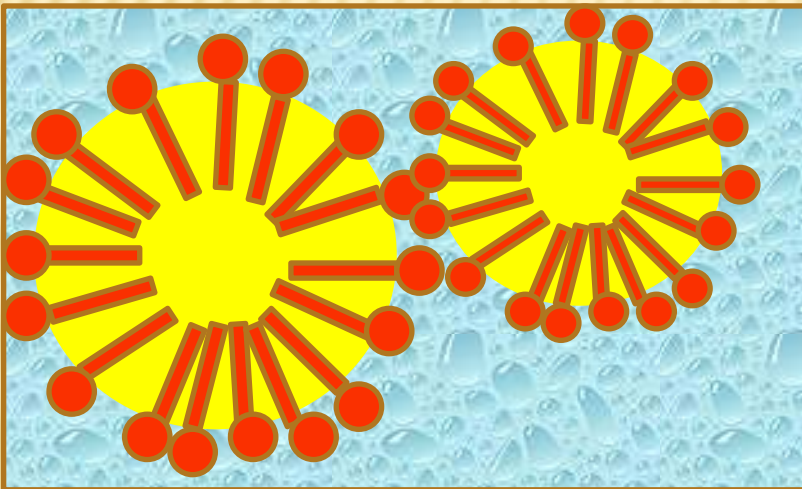


Zonder emulgator

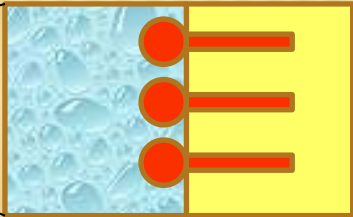
EMULGATOREN: FUNCTIONALITEIT



Zonder emulgator

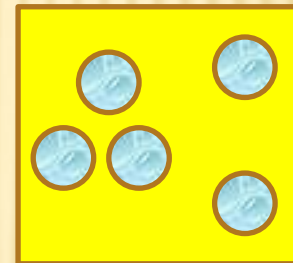


Met emulgator

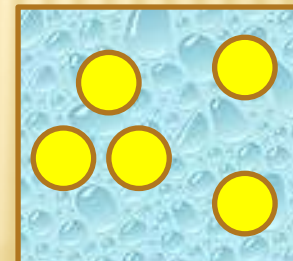


EMULGATOREN: FUNCTIONALITEIT

- ✘ Opklop emulgatoren
 - + Imitatie slagroom
 - + Badschuim
 - + Bierschuim
- ✘ Water in Olie emulgatoren
 - + Margarine
 - + Cosmetische crèmes
- ✘ Olie in water emulgatoren
 - + Melk
 - + Bodymilk
 - + Mayonaise



HLB: 3-8
Eerder lipofiel
Water in vet



HLB: 10-18
Eerder hydrofiel
Vet in water



HLB = Hydrofiel-Lipofiel balans

EMULGATOREN: BAKKERIJ

- × Lecithine
- × Mono - & di glyceride
- × SSL, CSL
- × Data - ester

EMULGATOREN : BAKKERIJ

Enzym: lecithine E322

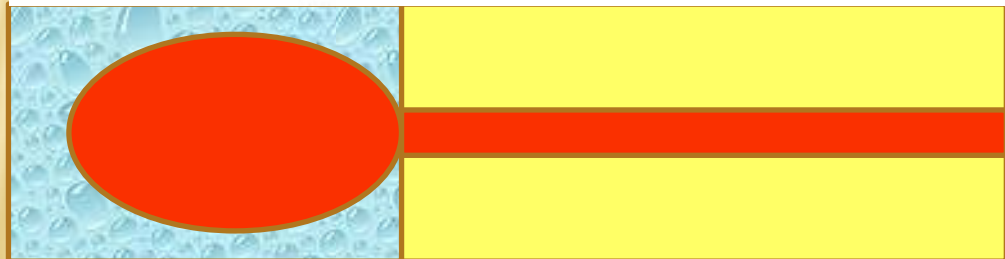
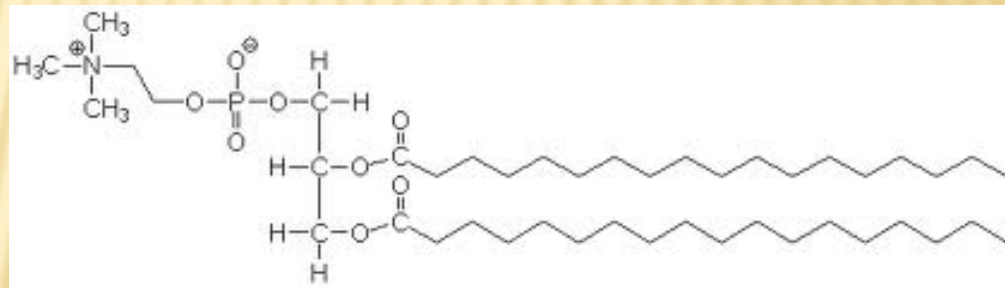
wetenschappelijk: vooral fosfatidylcholine

Oorsprong: soya (zonnebloem, koolzaad)

Gebruik: volume brood

anti spat

vloeibaarheid chocolade



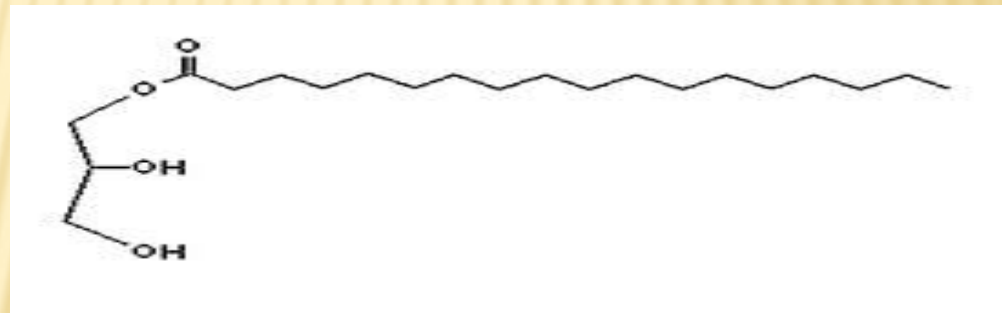
EMULGATOREN : BAKKERIJ

Enzym: mono's E471

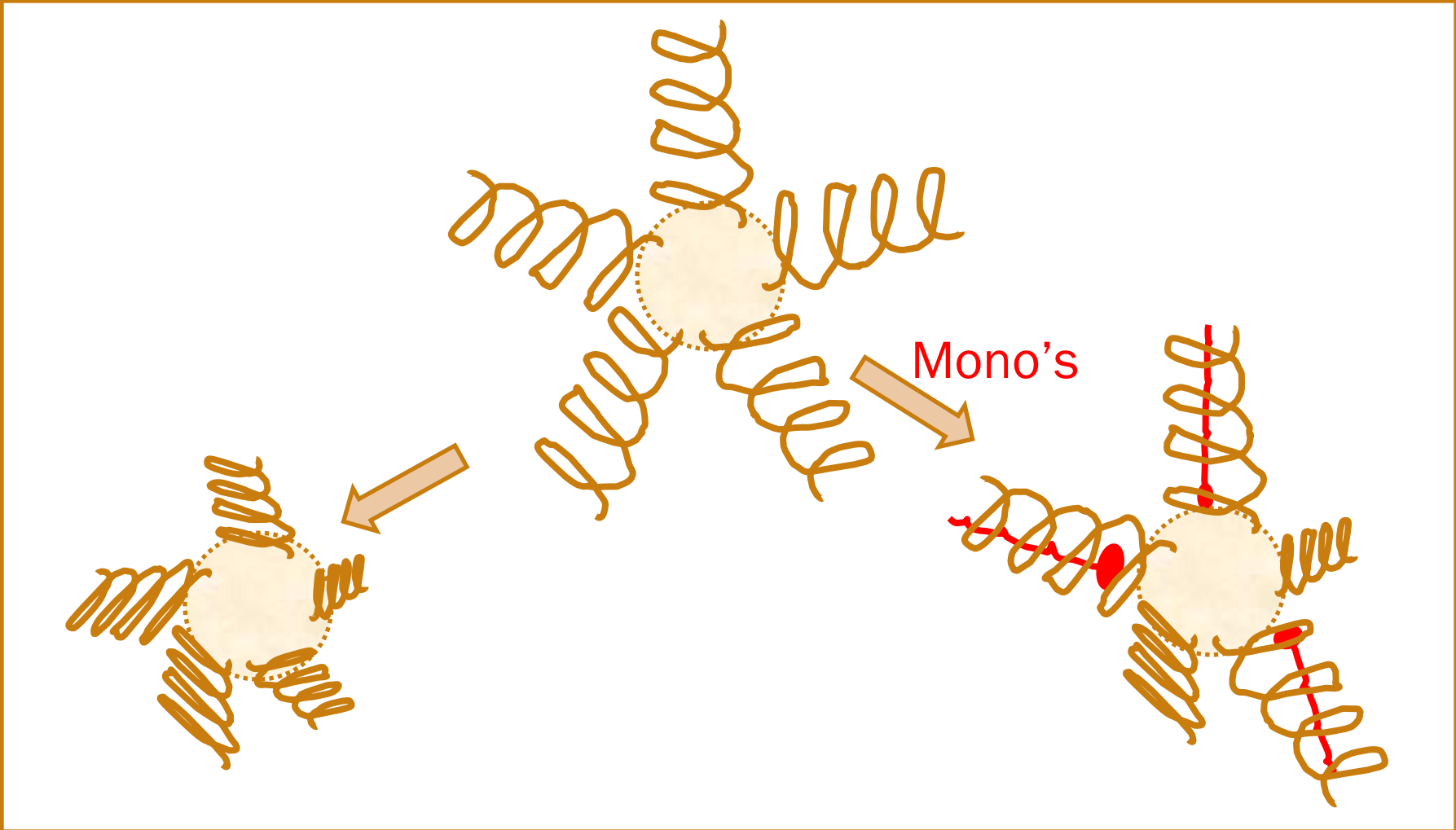
wetenschappelijk: mono- & diglyceride

Oorsprong: tri-glyceriden (=vetten)

Gebruik: zachtheid brood



EMULGATOREN : BAKKERIJ



EMULGATOREN : BAKKERIJ

Enzym: SSL E481 (CSL E482)

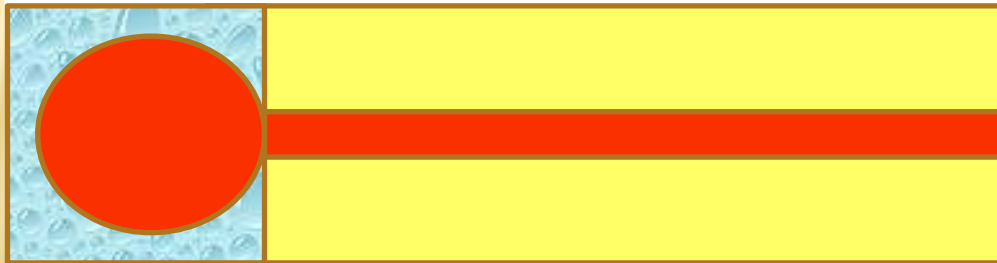
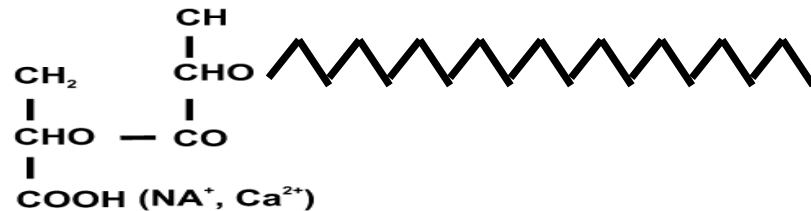
wetenschappelijk: sodium stearoyl lactilaat

Oorsprong: melkzuur esters van vetzuren

Gebruik: zachtheid brood

fijne kruim

volume



EMULGATOREN : BAKKERIJ

Enzym: Data ester E472e

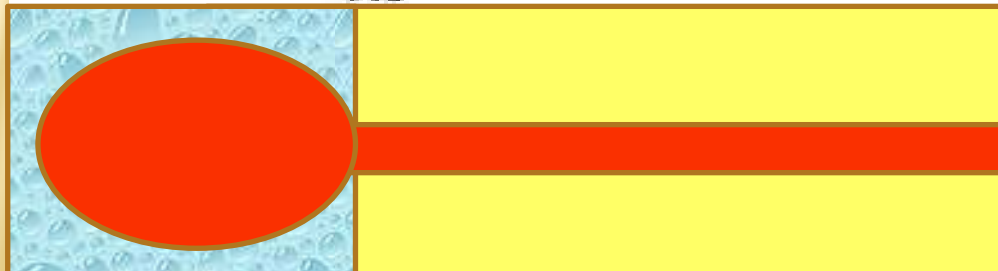
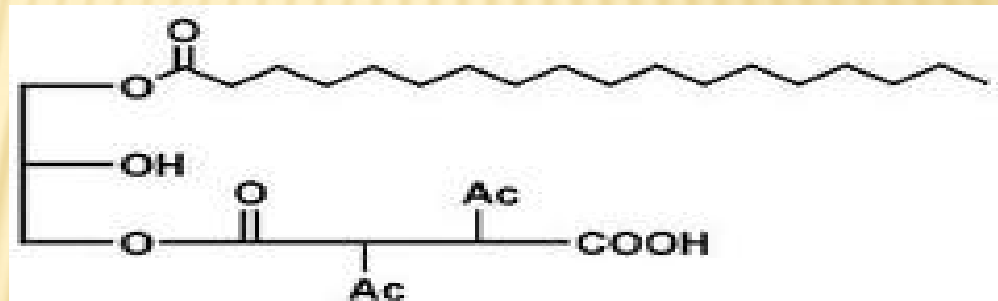
Wetenschappelijk: Diacetylwijnsteenzuuresters van mono- en diglyceriden

Oorsprong: esters van vetzuren

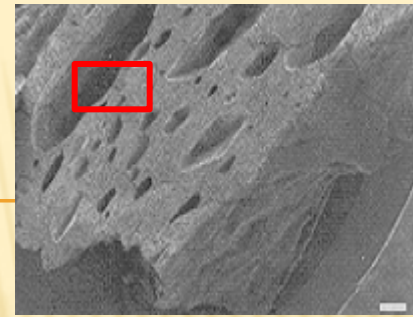
Gebruik: tolerantie

volume

krokantbroodverbeteraars



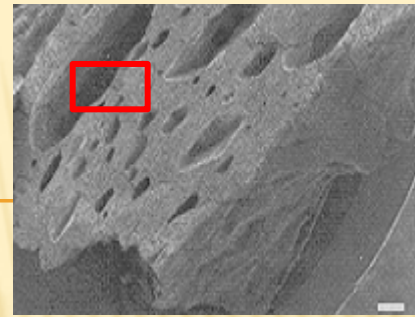
EMULGATOREN : BAKKERIJ



Zonder Data ester



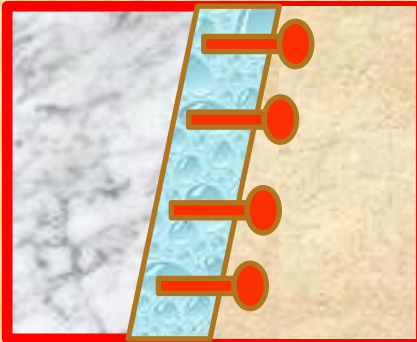
EMULGATOREN : BAKKERIJ



Zonder Data ester

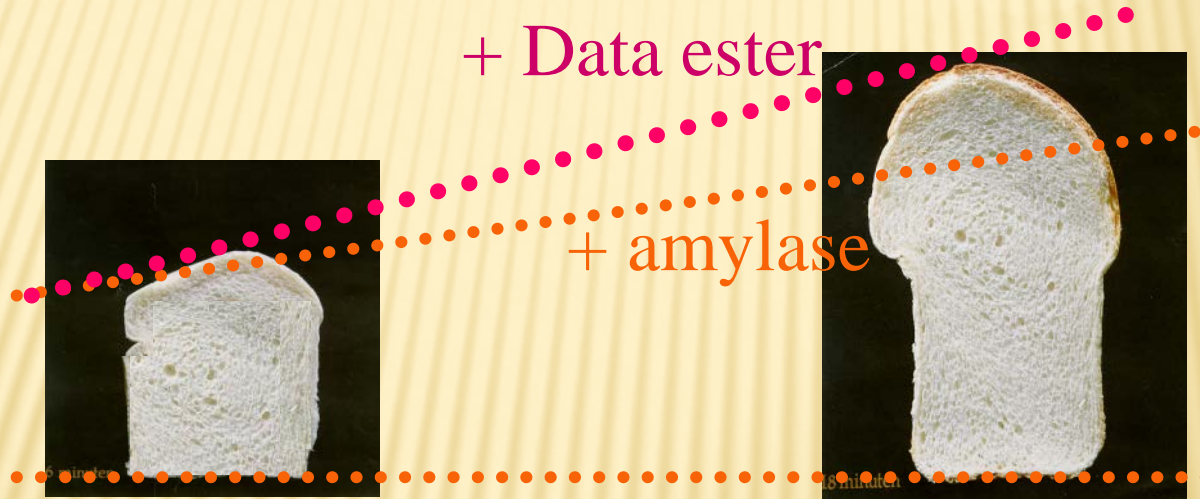


Met Data ester



EMULGATOREN : BAKKERIJ

Gecombineerd effect van emulgator
& enzymen



EMULGATOREN , ENZYMEN: OVERZICHT

	Sterkte gluten	Suiker voor gist	Soepele degen	Witte/fijne kruim	zachtheid	kleven
amylase		X			X	(X)
xylanase	X		X			(X)
oxidase	X			X		
protease			X			(X)
lipase	X			X		
Soya	X			X		
Mout		X	X		X	X
Lecithine	X				X	
Mono's					X	
SSL	X				X	
Data ester	X					

VRAGEN ?

