



International Textile Manufacturers Federation (ITMF)

International Cotton Committee on Testing Methods (ICCTM)

Stickiness WG

Introduction

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agronomique
pour le
développement



Plan of presentation

- ✓ **Introduction**
- ✓ **Stickiness: origins**
- ✓ **Stickiness: measurement**

Introduction

The challenge for cotton today

**To remain
competitive with
synthetic fibers**

**To maintain
acceptable profitability
in production**

Reduction of the production and processing costs

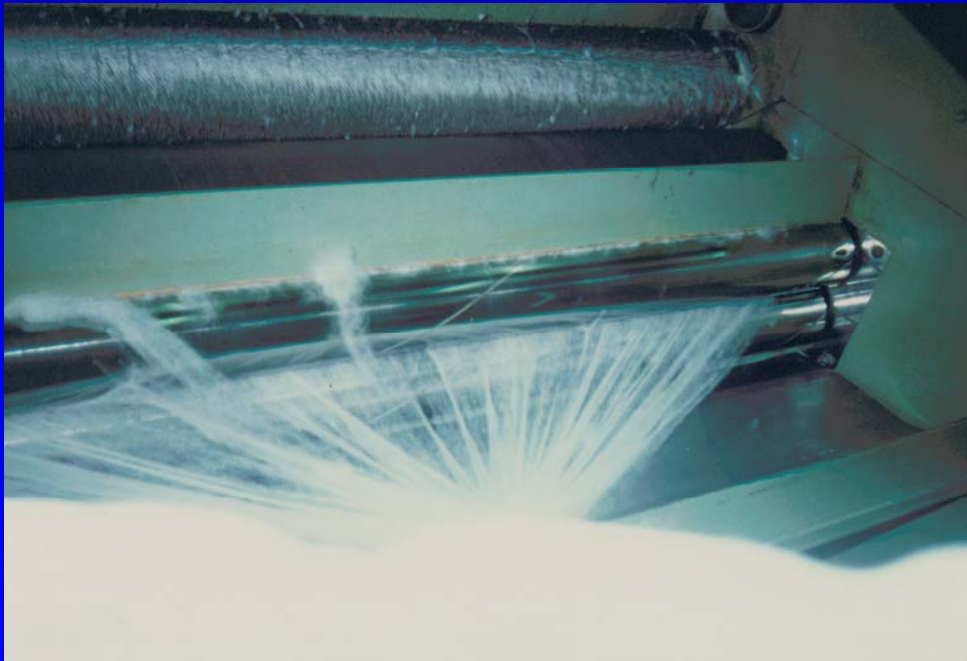
Introduction

The challenge for cotton today

**Cotton fiber
stickiness**



**Disruption / defects
Spinning process**



Introduction

The challenge for cotton today

**Cotton fiber
stickiness**

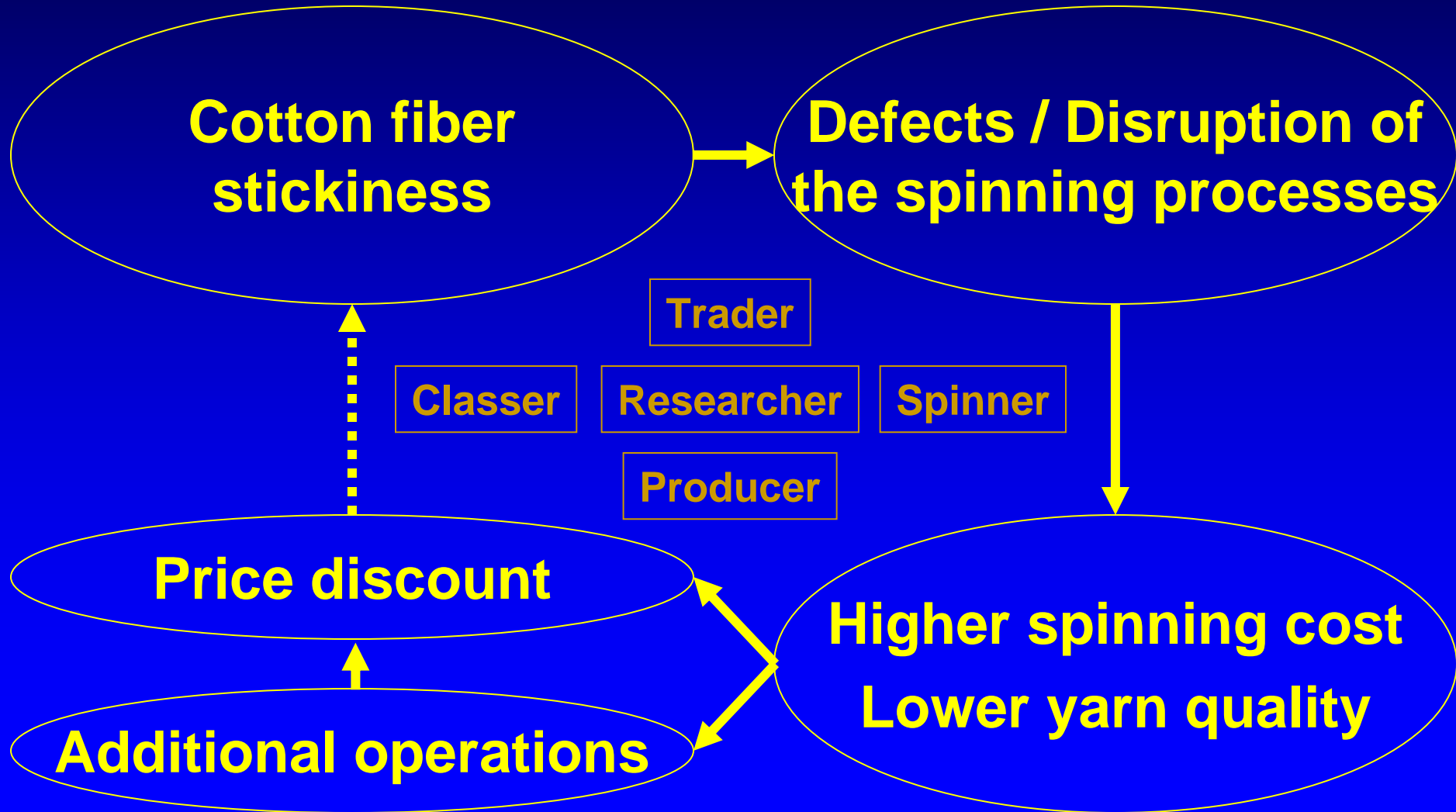


**Disruption / defects
Spinning process**



Introduction

The challenge for cotton today

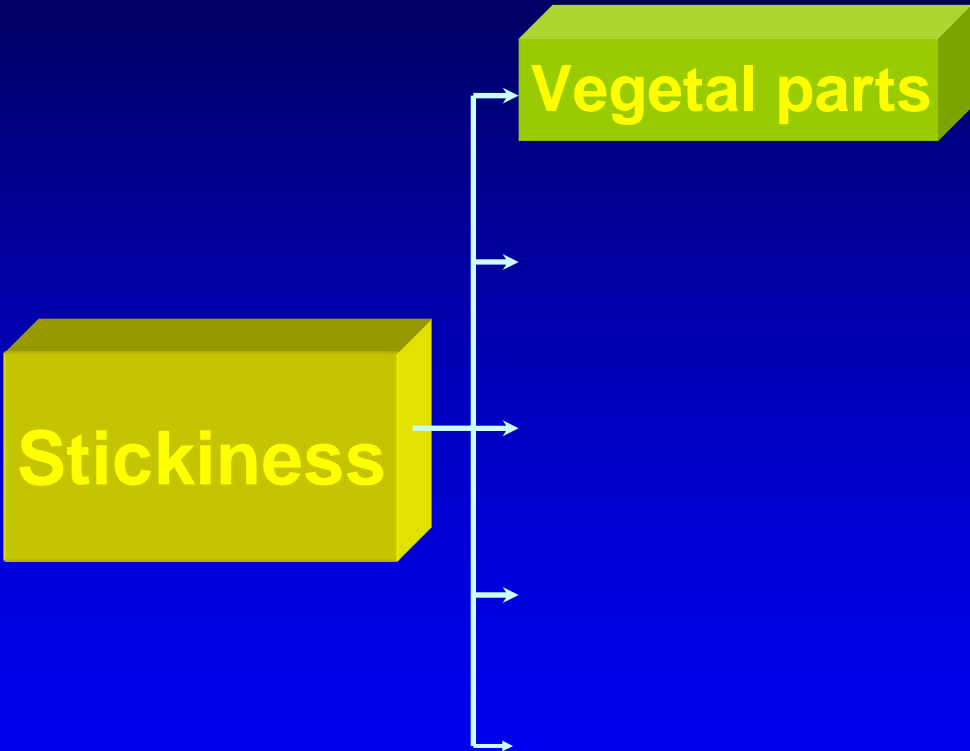




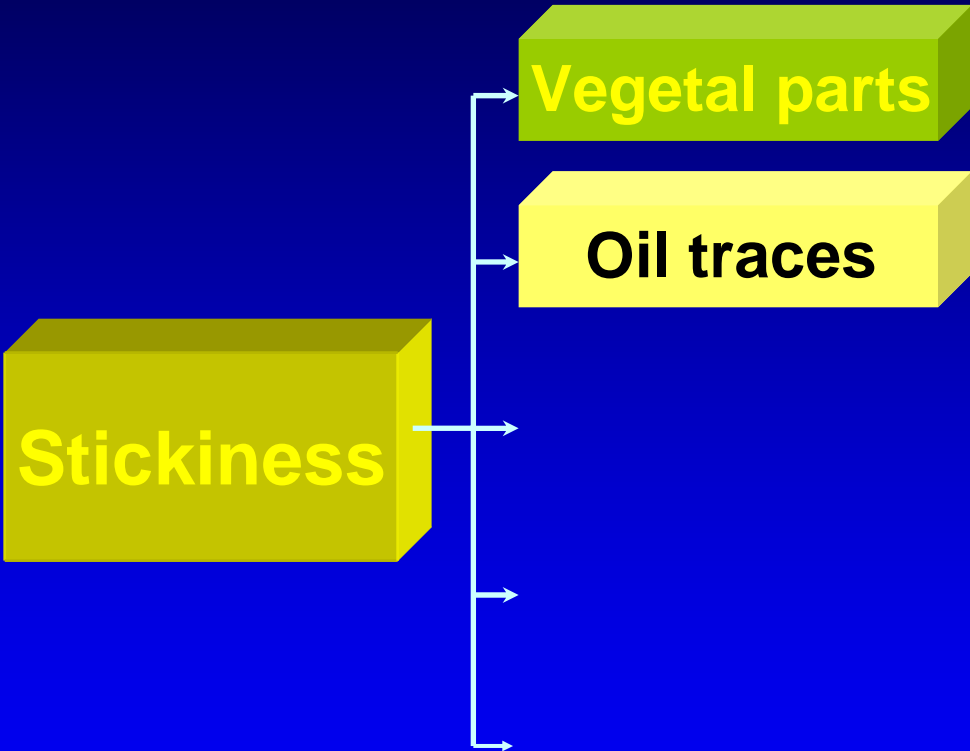
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- ✓ Introduction
- ✓ **Stickiness: origins**
- ✓ Stickiness: measurement

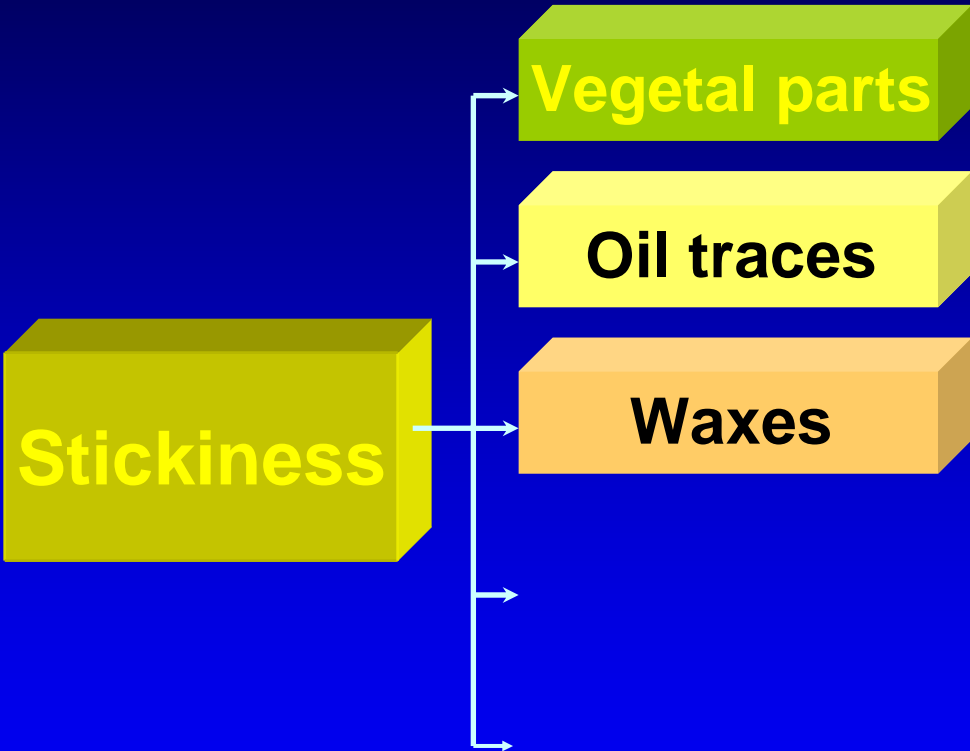
Origins of stickiness



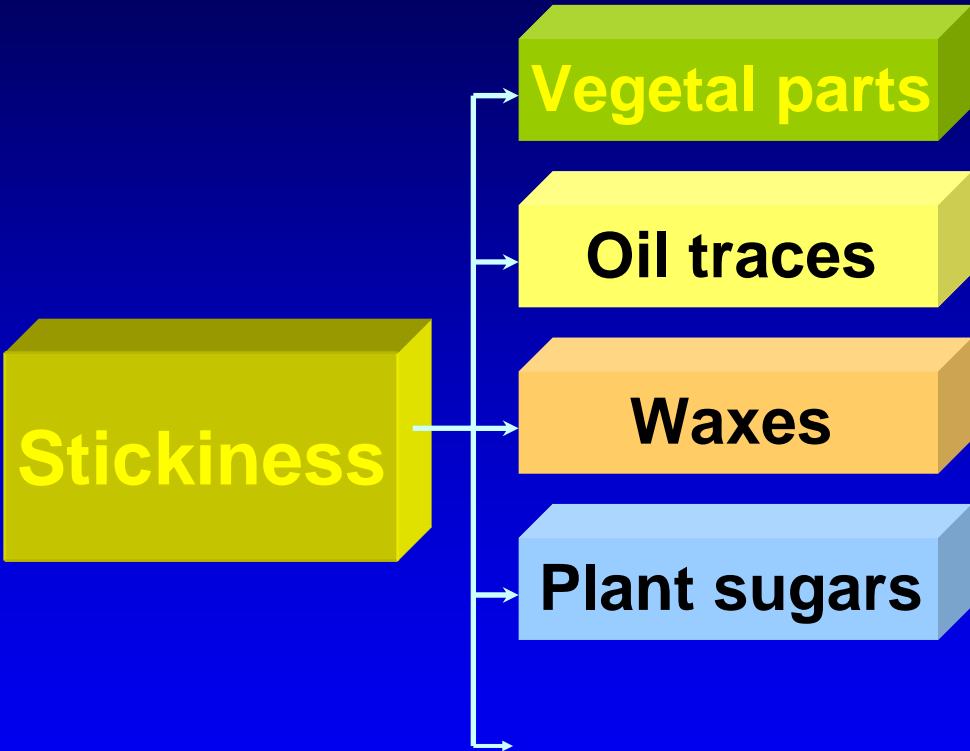
Origins of stickiness



Origins of stickiness



Origins of stickiness



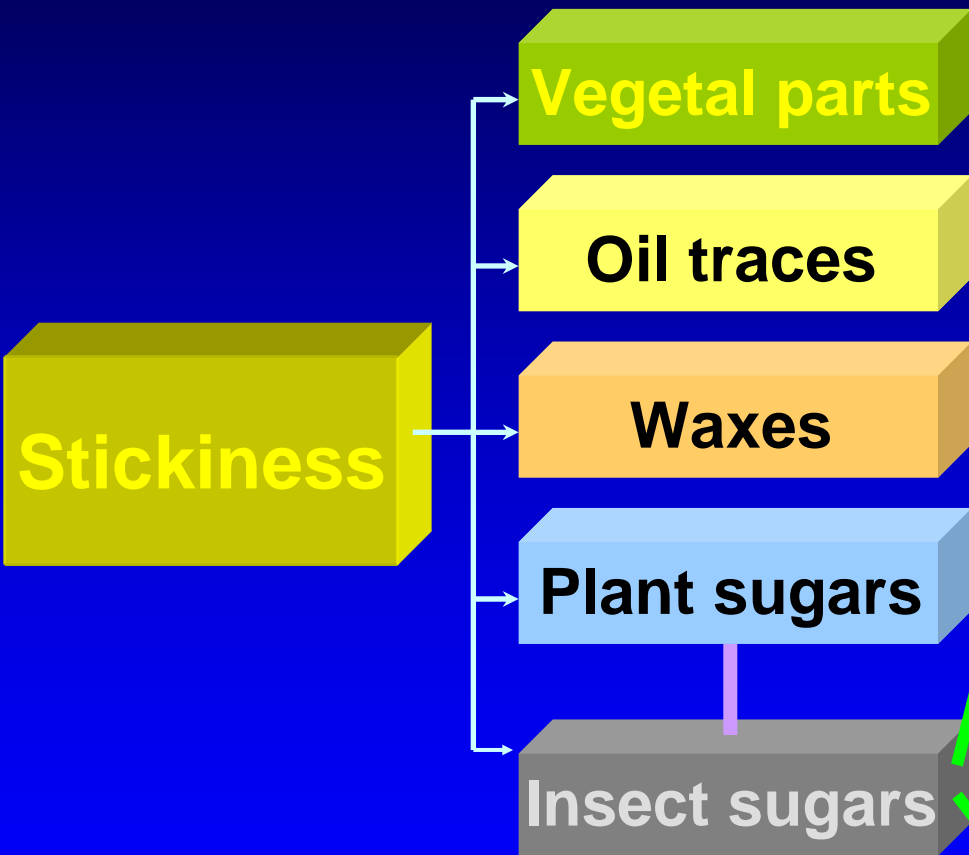
Origins of stickiness

Fiber constituents (%)	Days after flowering			
	10	20	30	50
cellulosis	12	60	82	90
proteins	15	8.4	4.3	0.9
pectic substances	4.5	3.9	2	0.8
reducing sugars*	30	15	2	0.3
waxes	4	3.1	1.9	0.9

* **Mainly glucose and fructose**

Source Parry, 1982

Origins of stickiness



Origins of stickiness

Mature boll covered with honeydew



Origins of stickiness

Mature boll covered with honeydew



Origins of stickiness

Main sugars (in %) determined by HPLC in aphid, whitefly and aleurod honeydew, harvested on *G. hirsutum*

Insect	Mono-saccharides	Polysaccharides		
		Sucrose	Trehalulose	Melezitose
<i>Aphis gossypii</i>	25	12	1	38
<i>Bemisia tabaci</i>	19	16	44	17
<i>Trialeurodes abutilonea</i>	44	33	3	0

Source Hendrix et al., 1992

Origins of stickiness

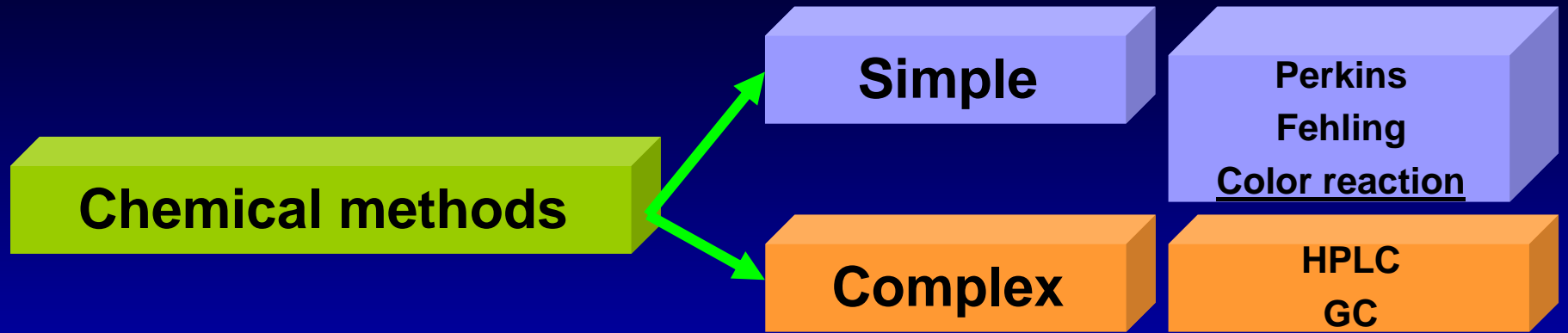
- The most important cause of stickiness is due to these entomological sugars.
- Honeydew has now become one of the main contaminants present in cotton.
- Sticky points remain in the cotton from the field up to the spinning processes where they cause production and quality losses.
- The behavior of contaminated fibres during processing is highly dependent upon the quantity and the type of the main sugars present in fibres



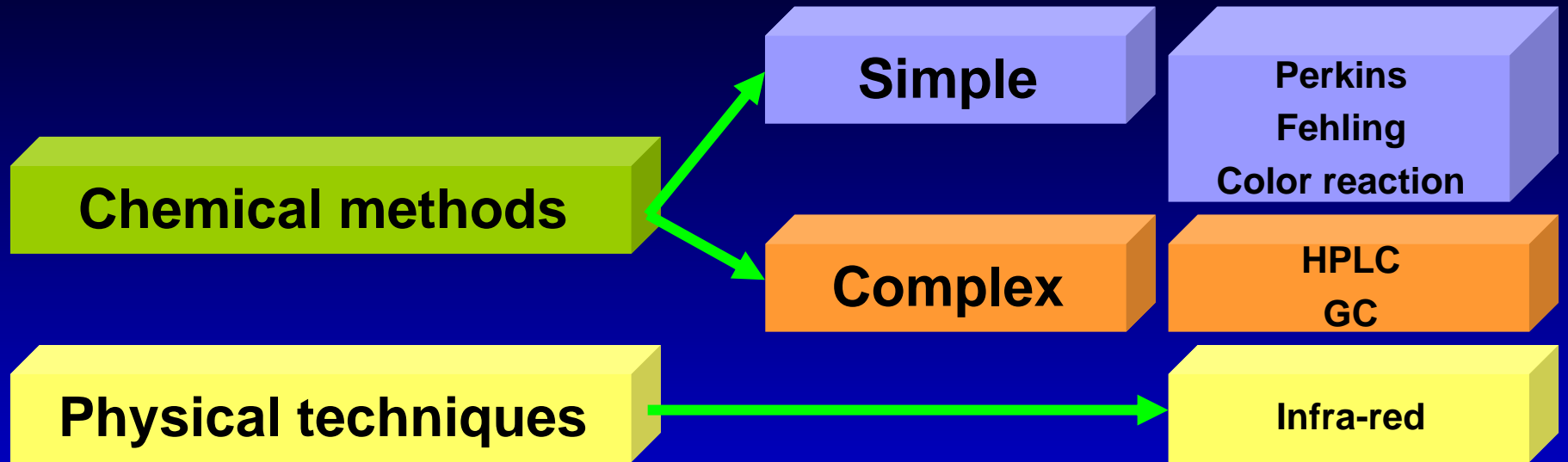
Plan of presentation

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- ✓ Stickiness: origins
- ✓ **Stickiness: measurement**

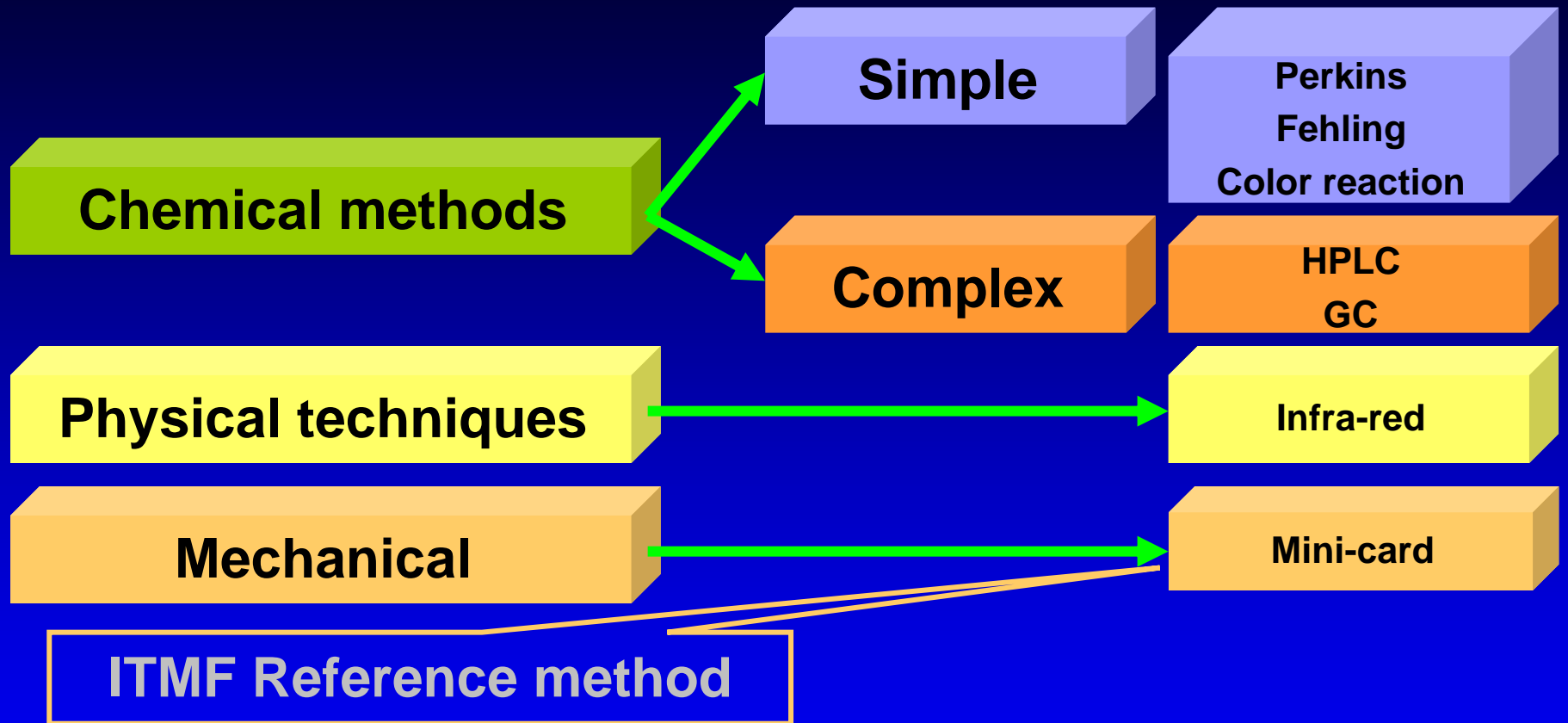
Stickiness measurement



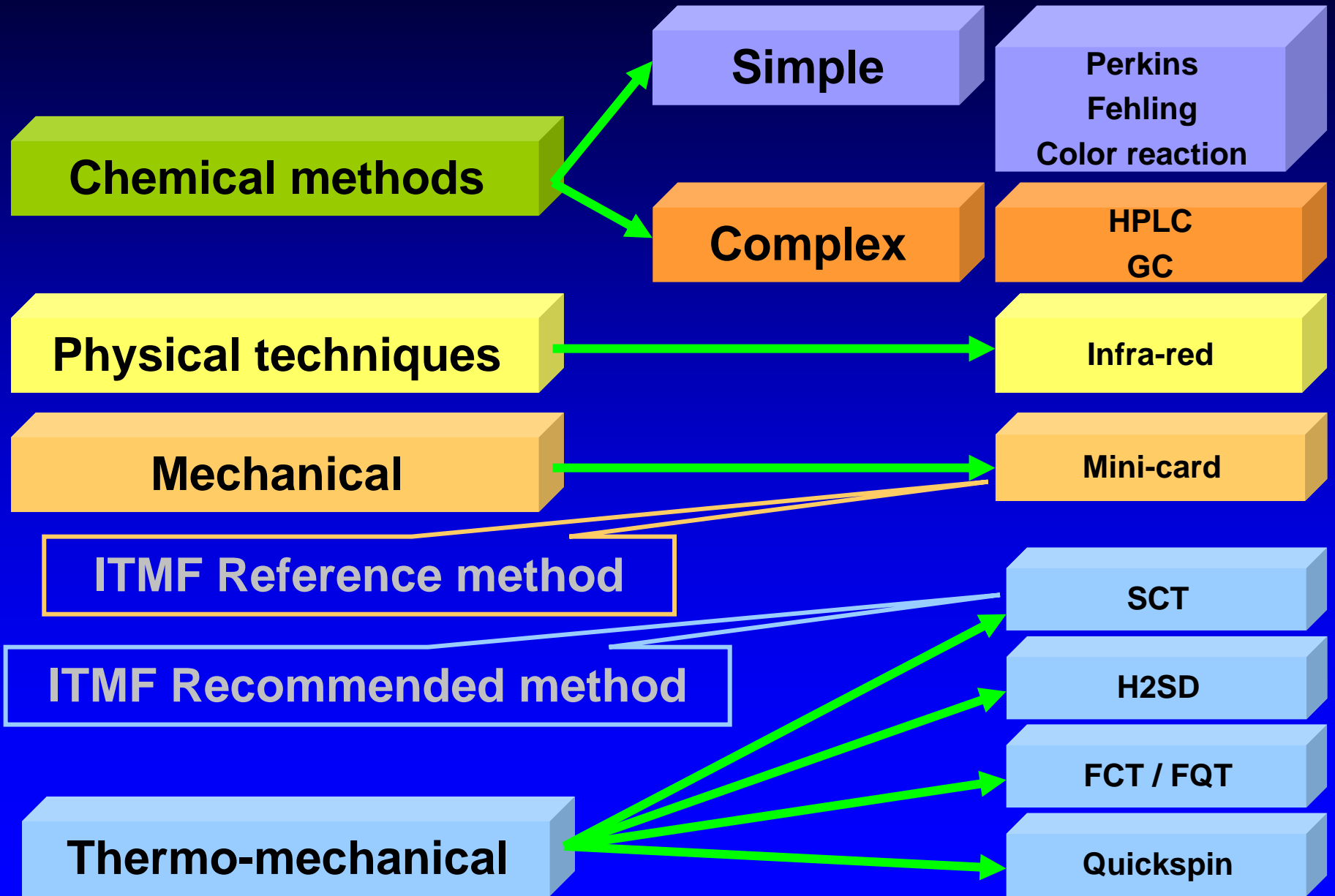
Stickiness measurement



Stickiness measurement



Stickiness measurement



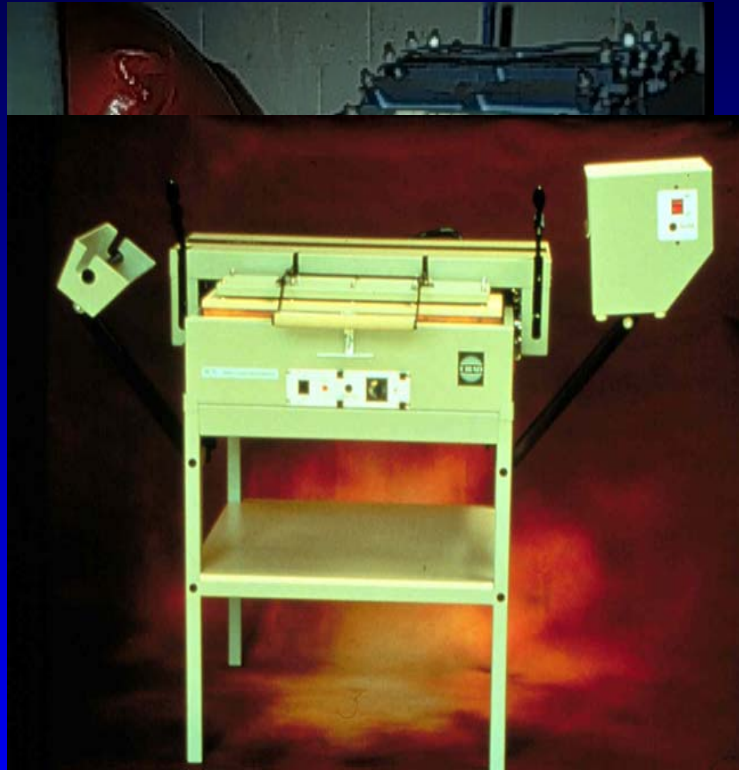
Stickiness measurement

Some measuring devices for stickiness evaluation



Stickiness measurement

Some measuring devices for stickiness evaluation



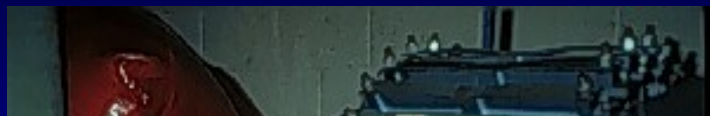
Stickiness measurement

Some measuring devices for stickiness evaluation



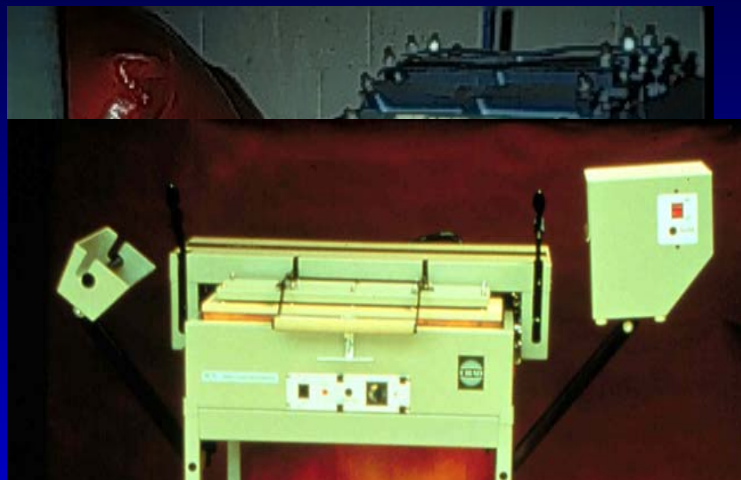
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Some measuring devices for stickiness evaluation



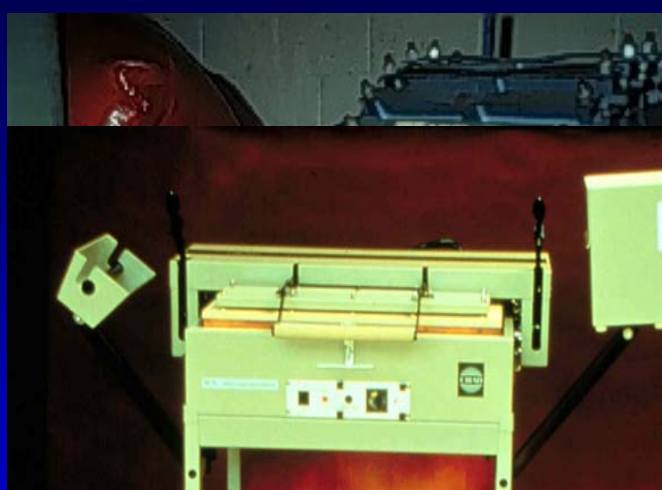
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Some measuring devices for stickiness evaluation



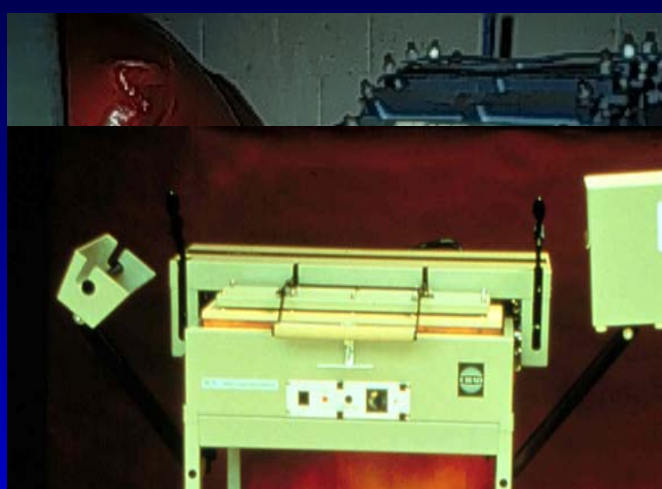
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Some measuring devices for stickiness evaluation



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Thank you

for

your attention

