

CH0204 Organic Chemical Technology

Lecture 4

Chapter 1 Natural Products

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Overview of topics

Chapter 1 NATURAL PRODUCTS

- 1 Pulp and Paper
- 2 Sugar
- 3 Starch and its derivatives



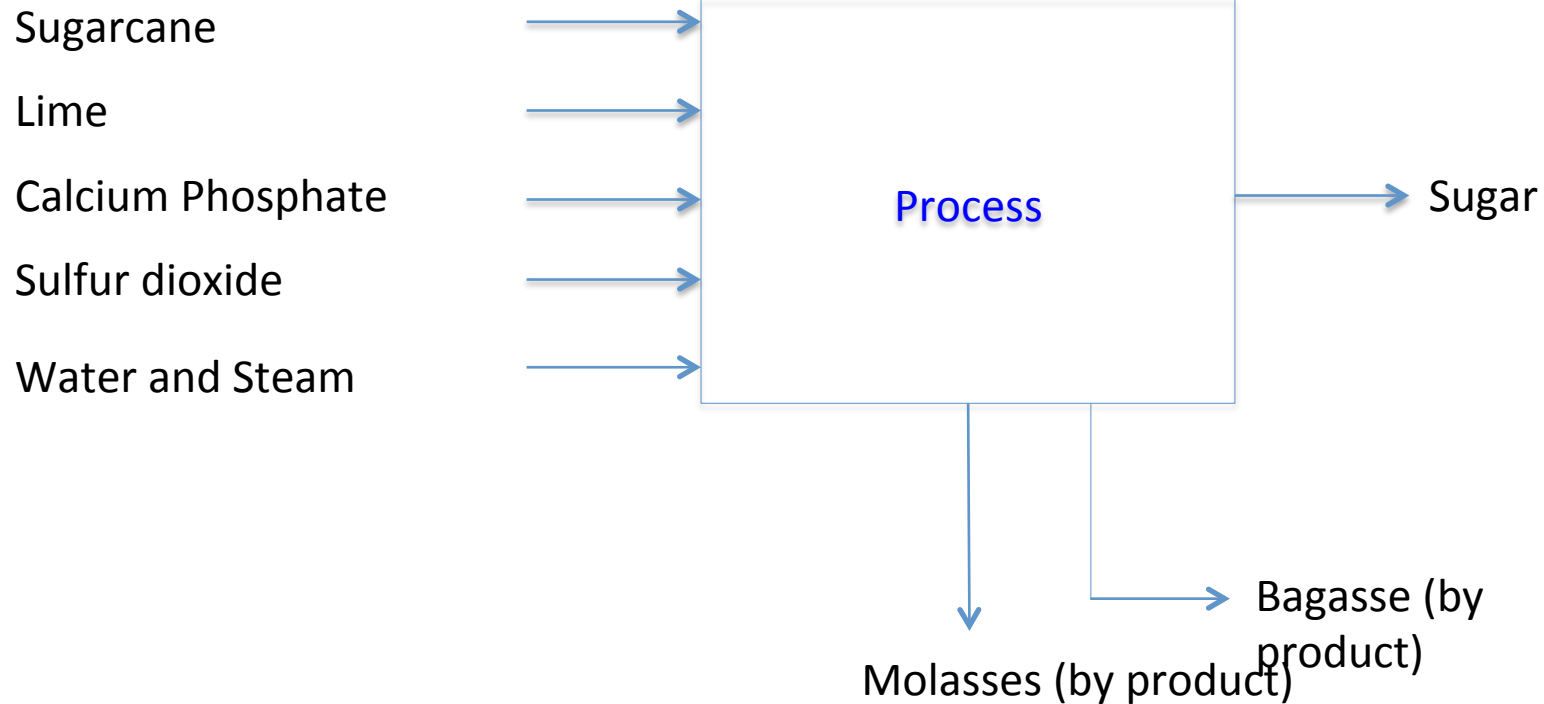
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Chapter 1 NATURAL PRODUCTS

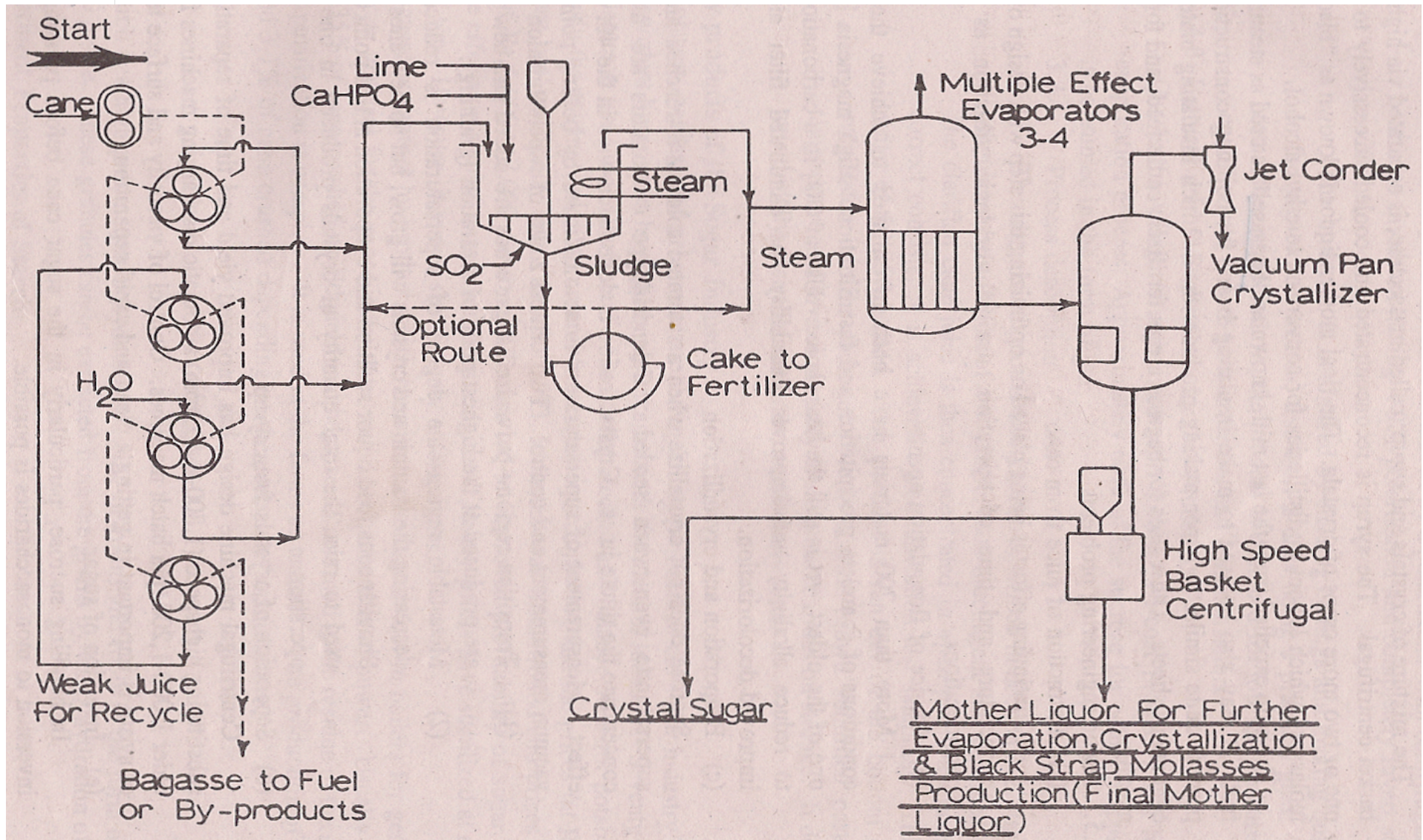
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Sugar Manufacture – Manufacture

General process



Sugar Manufacture



Process Description

S. No	Process	Equipment	Unit operations	Unit process	Objective	Operating conditions
1.	Continuous	(a) Primary Crusher	Crushing	_____	To facilitate initial crushing and Squeezing of juice from sugarcane	_____
	Continuous	(b) Secondary Crushers	Solid-liquid separation (Crushing)	_____	Extracting the maxing amount of available juice from sugarcane . Expel the crushed cane (Bagasse) .	_____
	Continuous	(c) Thickener/ Clarifier/ Mixer-Settler	Solid-liquid separation (Flocculation)	_____	To separate the colloidal impurities in juice by adding lime and calcium phosphate. pH is also adjusted by adding sulfur dioxide.	_____

Process Description

(contd....)

S. No	Process	Equipment	Unit operations	Unit process	Objective	Operating conditions
	Continuous	(d) Rotary Drier	Solid-Liquid Separation (Filtration)	_____	To separate the cake and liquid juice obtained from the underflow of thickener/clarifier.	_____
	Continuous	(e) Evaporator	Liquid-Liquid Separation (Evaporation)	_____	To separate the solvent water from the juice. To concentrate the solute	_____
	Continuous	(f) Vacuum Pan Crystallizer	Solid – Liquid Separation (Crystallization)	_____	To produce sugar crystals and mother liquor or black strap molasses.	_____
	Continuous	(g) Basket Centrifuge	Solid – liquid Separation	_____	Separation of Sugar crystals from mother liquor.	_____



References

1. Dryden C. E, *Outlines of Chemical technology – for the 21st Century*, 3rd edition, East-West Press (2004)
2. Austin G. T, *Shreve's Chemical Process Industries*, 5th edition, Mc Graw Hill International editions (1984)
3. Finar IL, *Organic Chemistry Vol. 1 6th Edition* Pearson Education 2009 pp.116-117



Thank You