

# ThermalNet

## Review of WPs for Pyrolysis

3 April 2006

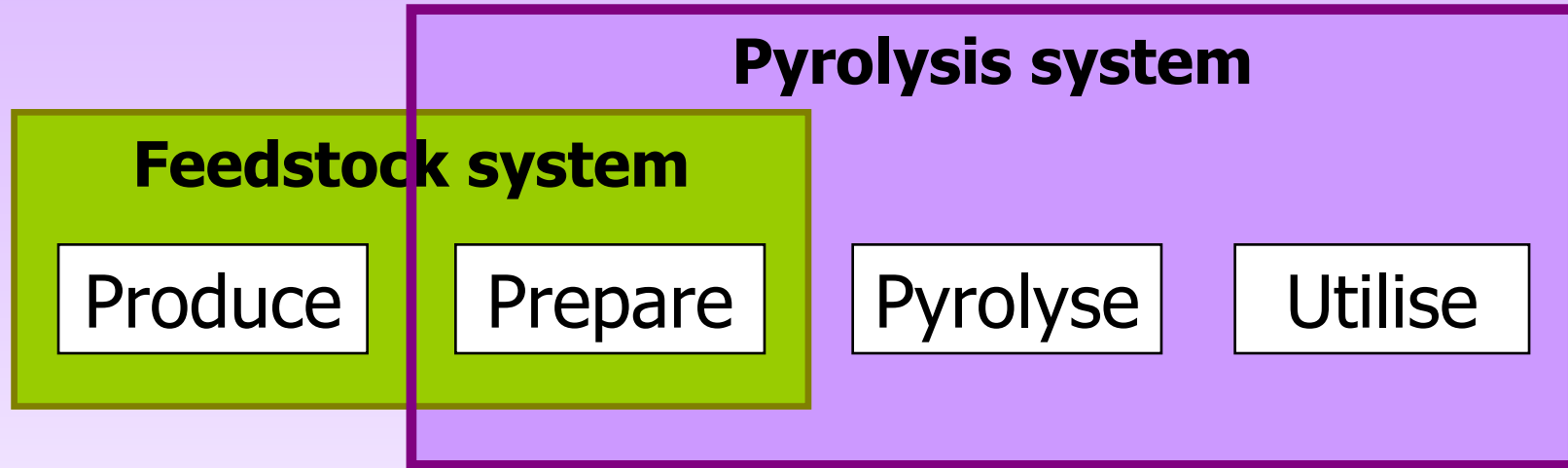
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# WP Analysis

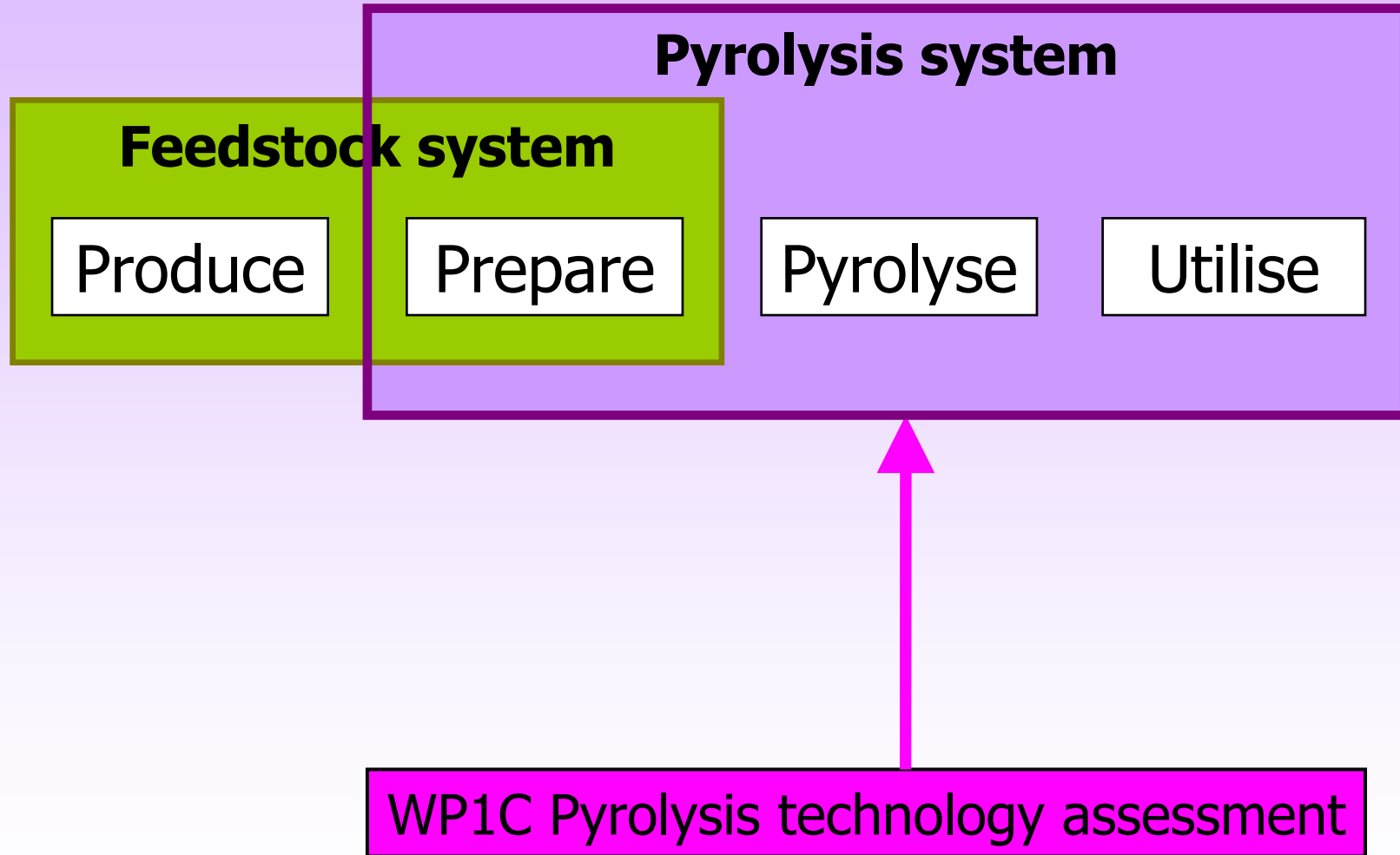
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Topic	WP-number											
	2A	2B	2C	2D	2E	2F	2G	2H	3A	3B	3C	3D
<b>WP2A</b> Database on feedstock and pyrolysis liquid product analyses Recommend analytical methods for pyrolysis liquids Provide data to EUBIONET on properties important to be standardised												
<b>WP2B</b> Increased fuel flexibility (quality, quantity) Fouling and corrosion of the boiler (alkali and other metals, chlorine) Ash quality and reuse in building materials High temperature steam boilers Gas treatment for pre-gasification On site fuel handling Deactivation of DeNOx catalysts Particle burn-out and gas mixing Particle size control Cofiring RDF and contaminated biomass Effects on performance of gas cleaning systems Thermochemical pretreatment (torrefaction, pyrolysis, gasification) Physical pretreatment (pelletization, drying, size reduction) Economic aspects: financial incentives, uncertain fuel prices, markets Legislative aspects: utilization of fly ash, green share, emissions Public perception of co-firing of biomass/waste												
<b>WP2C</b> Quality and quantity of fuel Fouling and corrosion of the boiler Ash characteristics On site fuel handling Particle size Fuel contamination Pretreatment Fuel costs Moisture content												
<b>WP2D</b> Behavior of biomass ashes at elevated temperatures Gas-side corrosion of high temperature components Impact of ash components in gas clean-up equipment												
<b>WP2E</b> Particle removal within pyrolysis Particle removal within gasification Particle removal within combustion Reduction of gaseous emissions in combustion of pyrolysis products Product gas cleaning in gasification with the emphases on H2S, NH3, HCl Removal of SO2, Nox, CO and HC in biomass combustion Upgrading of pyrolysis oil, catalytic/ non-catalytic Upgrading of product gas, catalytic/ non-catalytic												
<b>WP2F</b> Research activities on fundamentals Research activities on technologies Comprehensive assessment of the science of pyrolysis Comprehensive assessment of the science of gasification Comprehensive assessment of the science of combustion Solid fuel reactivity Chemical kinetics Transport models for single particles Transport models for chemical reactors Experimental methodologies												

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	2A	2B	2C	2D	2E	2F	2G	2H	3A	3B	3C	3D
<b>WP2G</b> Technical issues of biofuels for market implementation Technical and economical feasibility of different biofuel production systems												
<b>WP2H</b> Thermochemical pretreatment (pyrolysis) and processing to value-added products Economic: financial incentives, uncertain petroleum prices, markets Legislative aspects Increased fuel flexibility by utilization of lignin-rich residues Elimination of fouling and corrosion of the boiler Particle burn-out and gas mixing for bio-oil Effects on performance of gas cleaning systems i.e. pyrolysis oil recovery Physical pretreatment (pelletization, drying, size reduction) as it affects pyrolysis												
<b>WP3A</b> Policy Low policymakers' expectations Economics Perception of lack of economics Legislation & authorizations Lack of established market and new market uncertainty No established supply infrastructure Lack of successful operational history/long term demonstration Knowledge flow between and engagement with stakeholders Poor understanding of technology and benefits Feedstock availability Inappropriate/insufficient funding Product quality standards Environmental performance Grid access Risks/guarantees associated with plant development												
<b>WP3B</b> biomass potentials, prices and availability Unclear political intentions Variables and methods of TEA Effect of environmental and social issues on TEA and MCDA Gap between laboratory RTD and big scale industrial RTD research focus does not correspond with market needs												
<b>WP3C</b> Availability of EU educational activities Existing needs in bioenergy education Understanding of the whole bioenergy chain and environmental Inadequate knowledge of thermal bioenergy technologies Capital and operating costs of different technologies Communication capability, needed to improve public perception Existing legislative barriers												
<b>WP3D</b> Environment, health and safety issues in gasification and pyrolysis Develop a general framework of a risk assessment methodology Collect existing information, procedures and guidelines for large systems Assess bio-oil biodegradability												

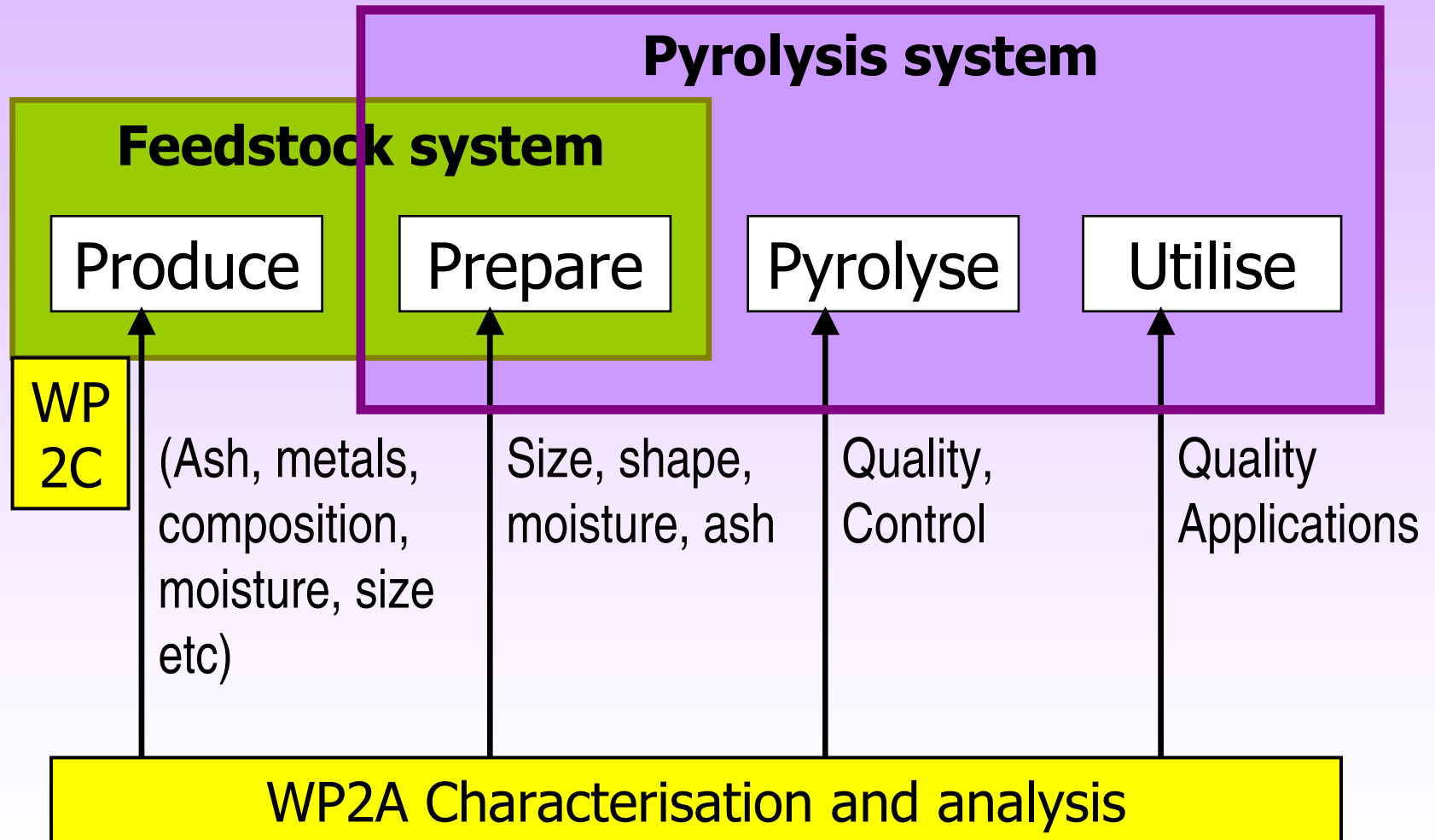
# Pyrolysis



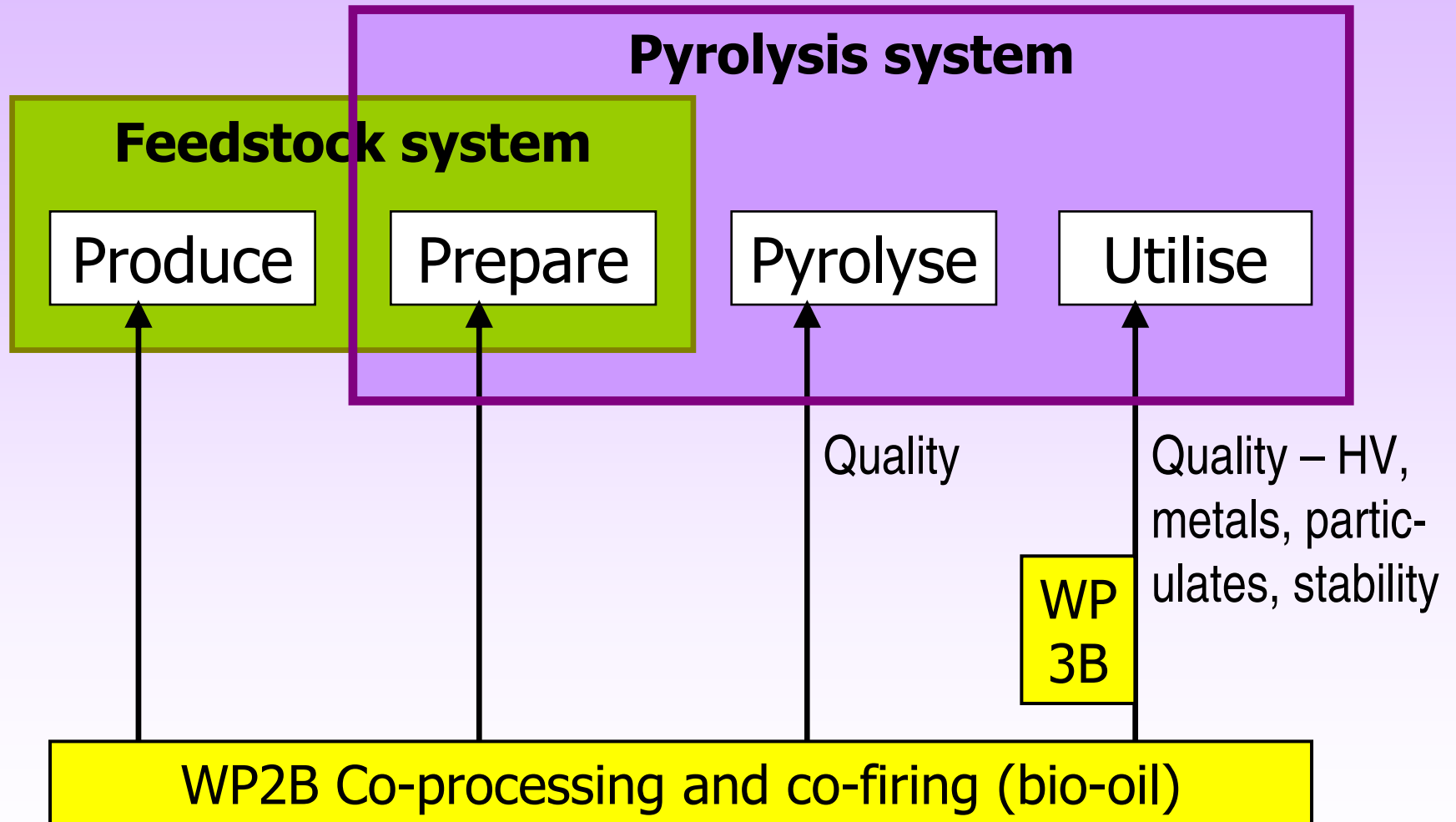
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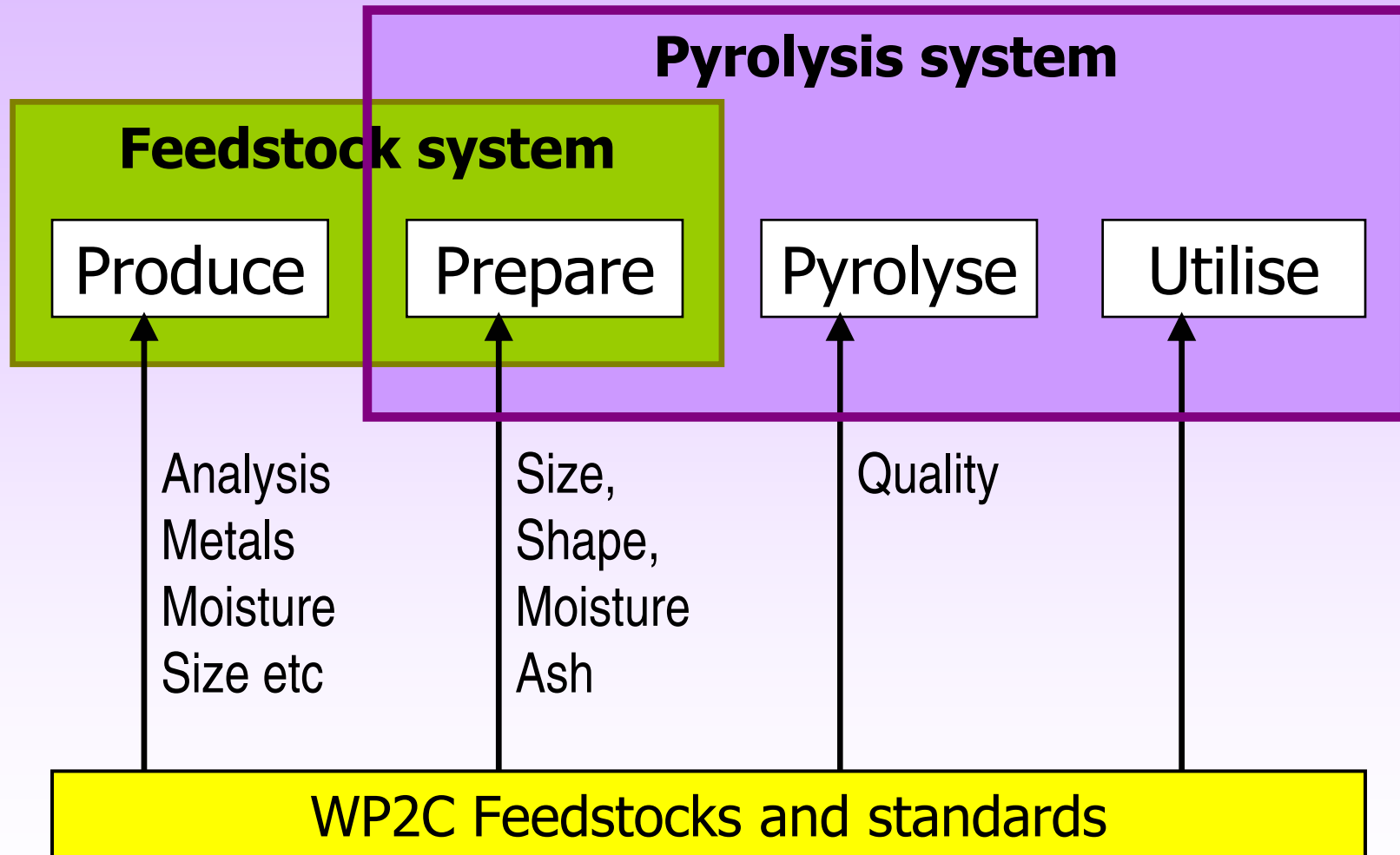
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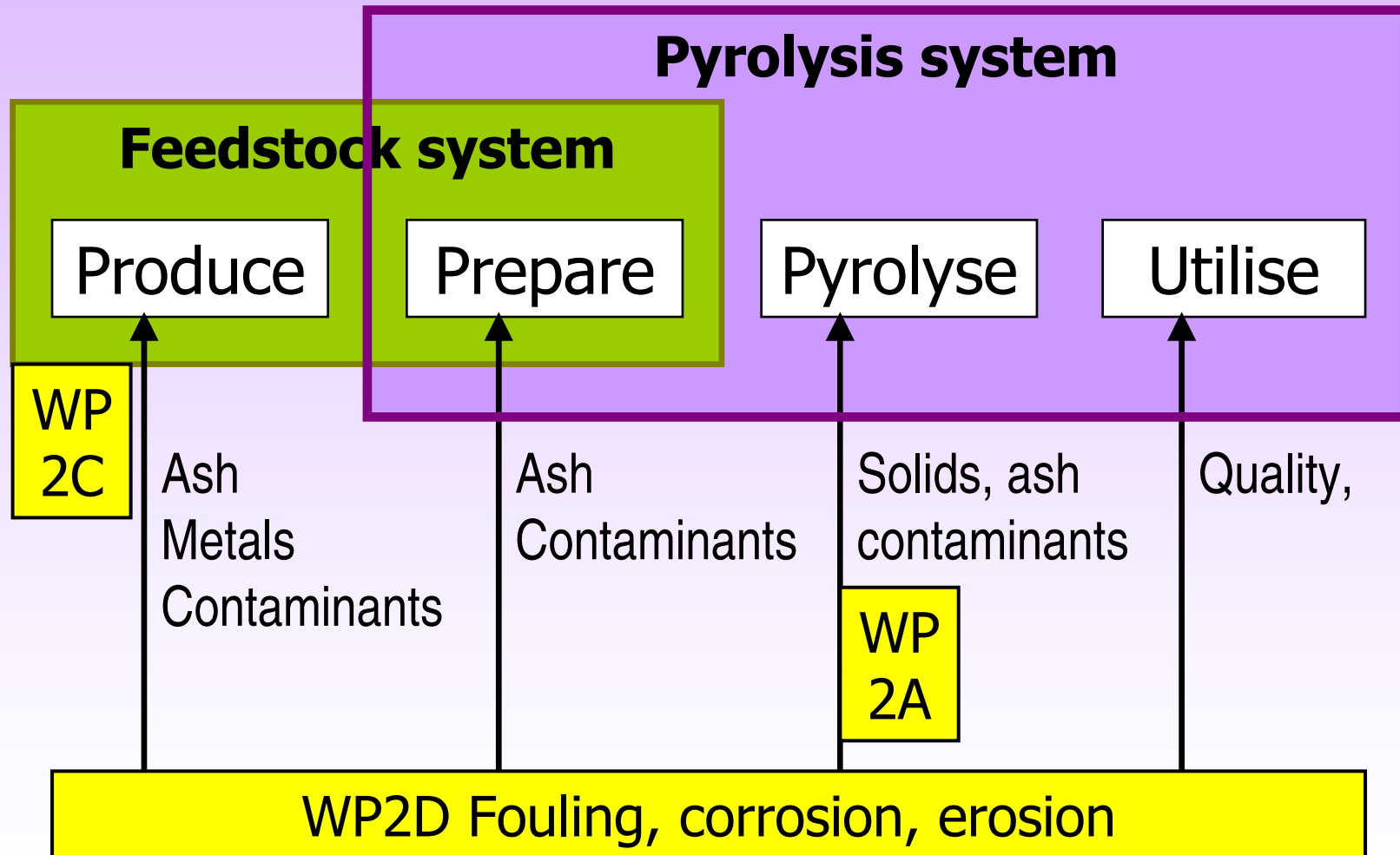
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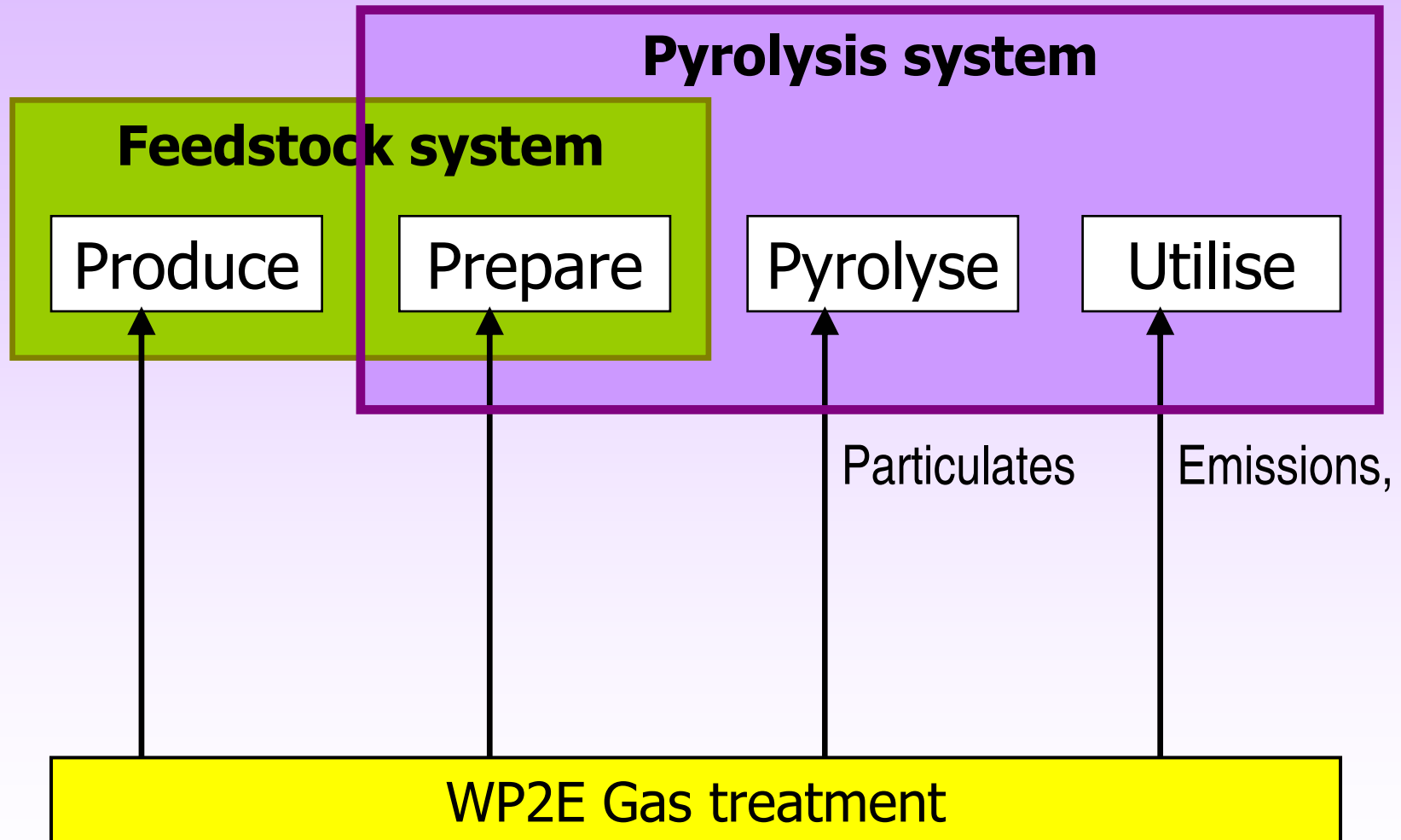
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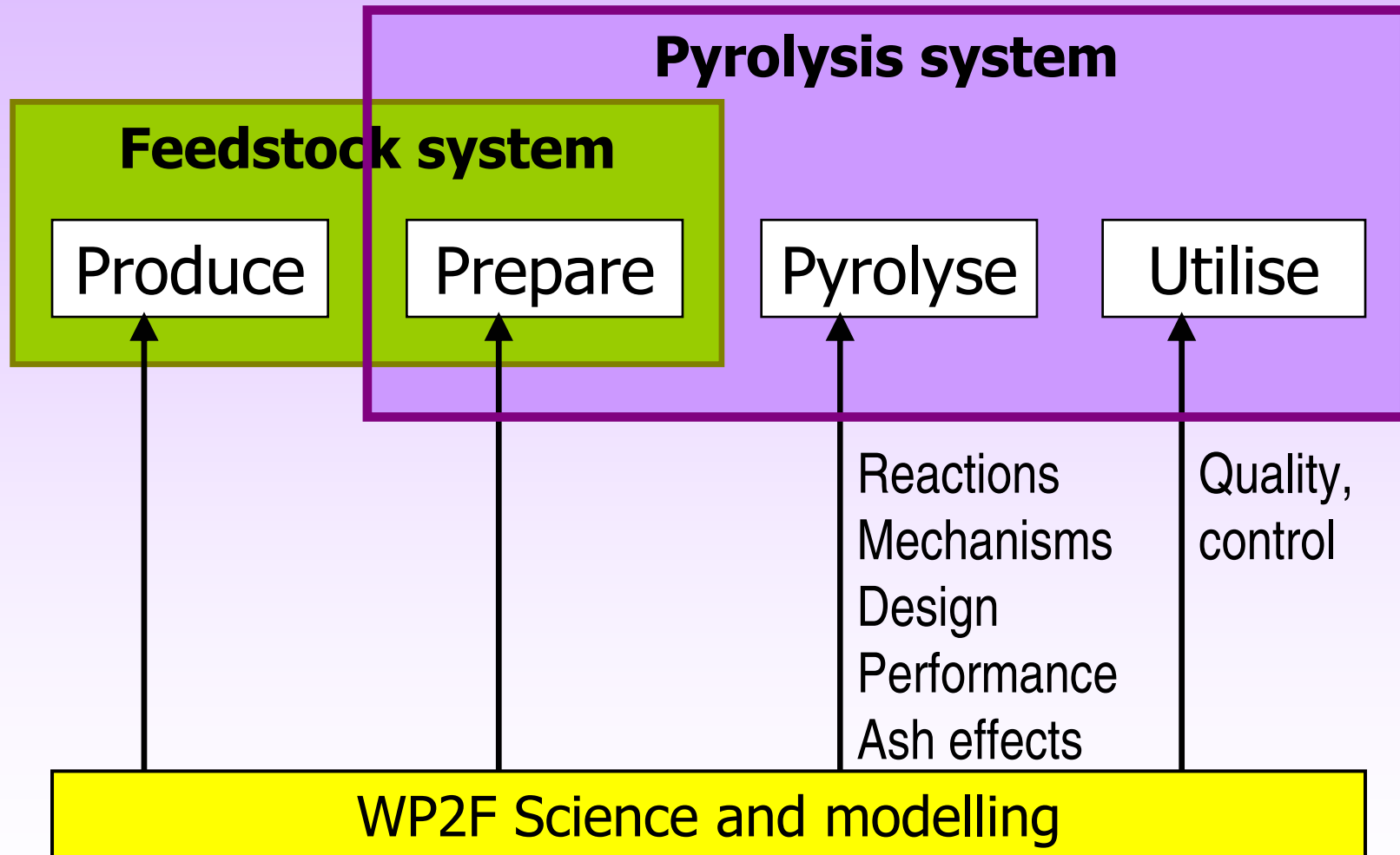
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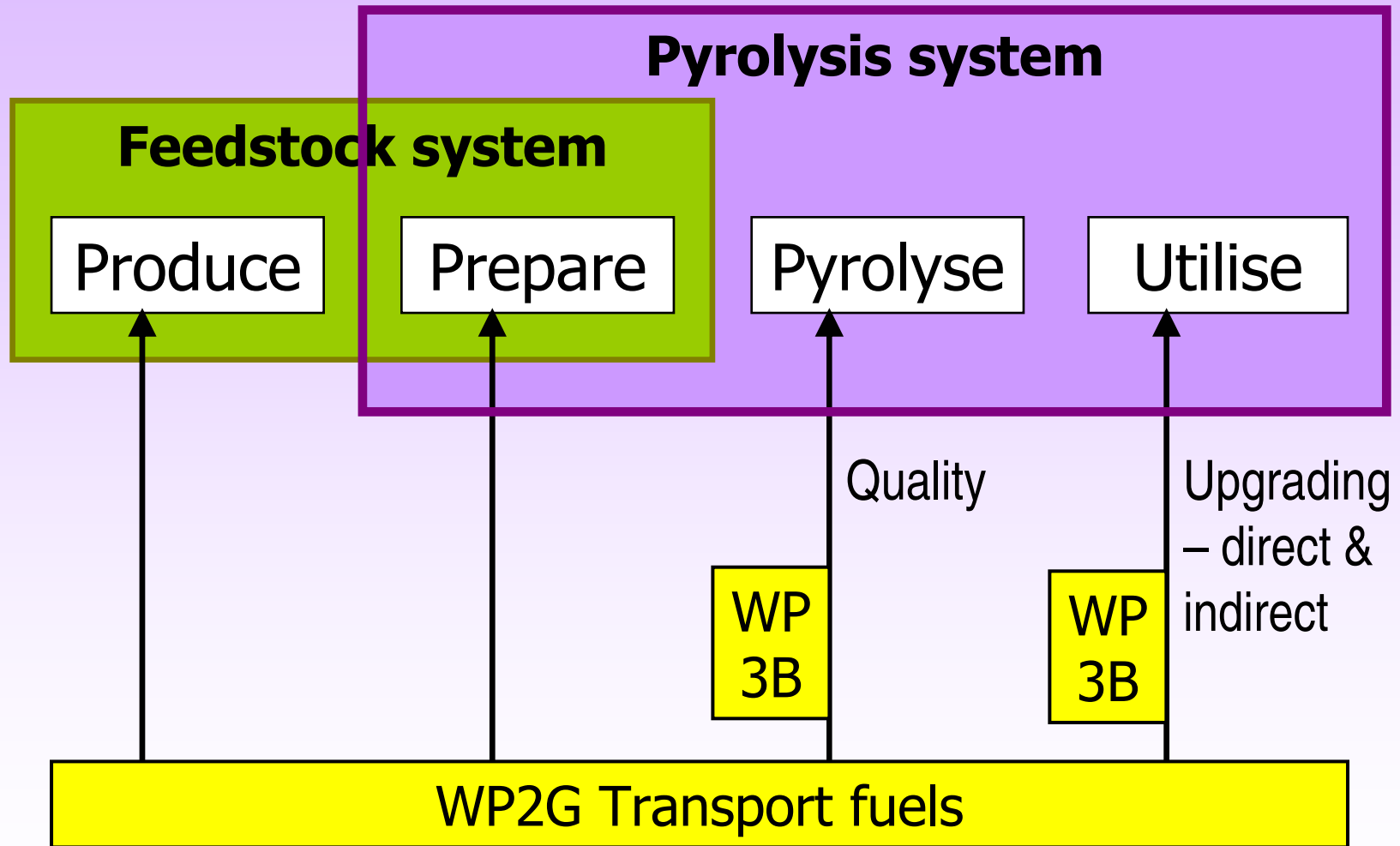
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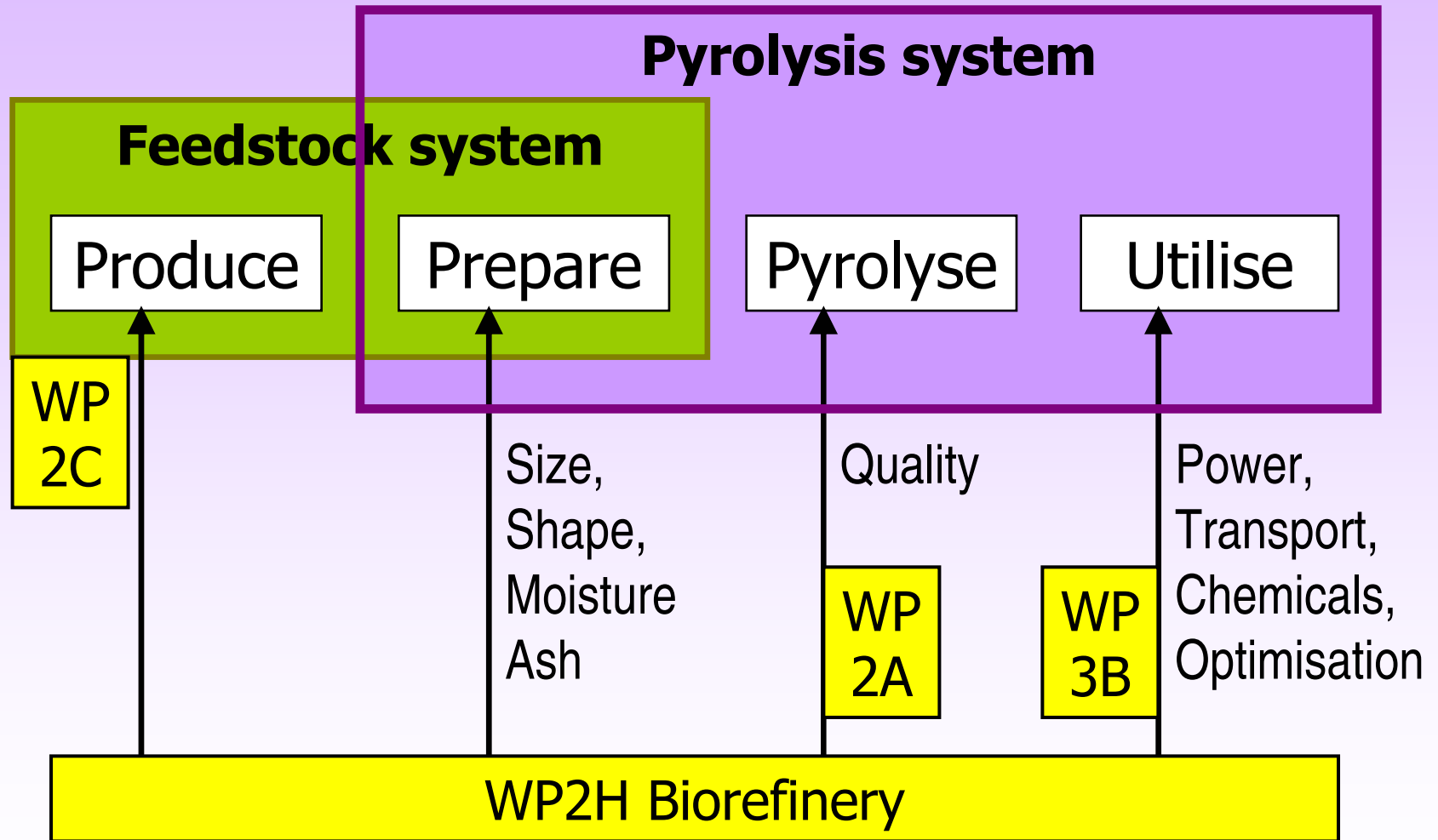
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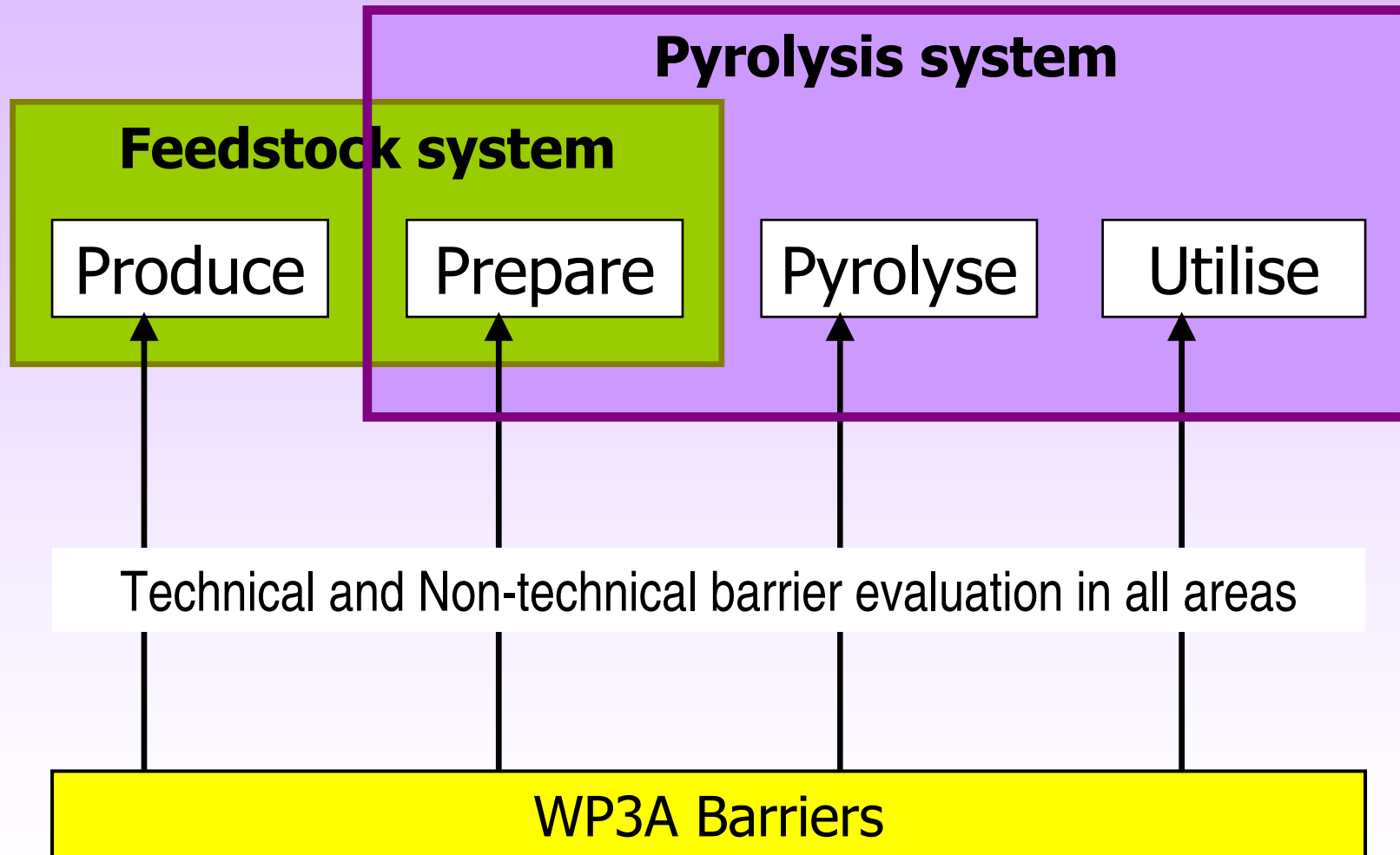
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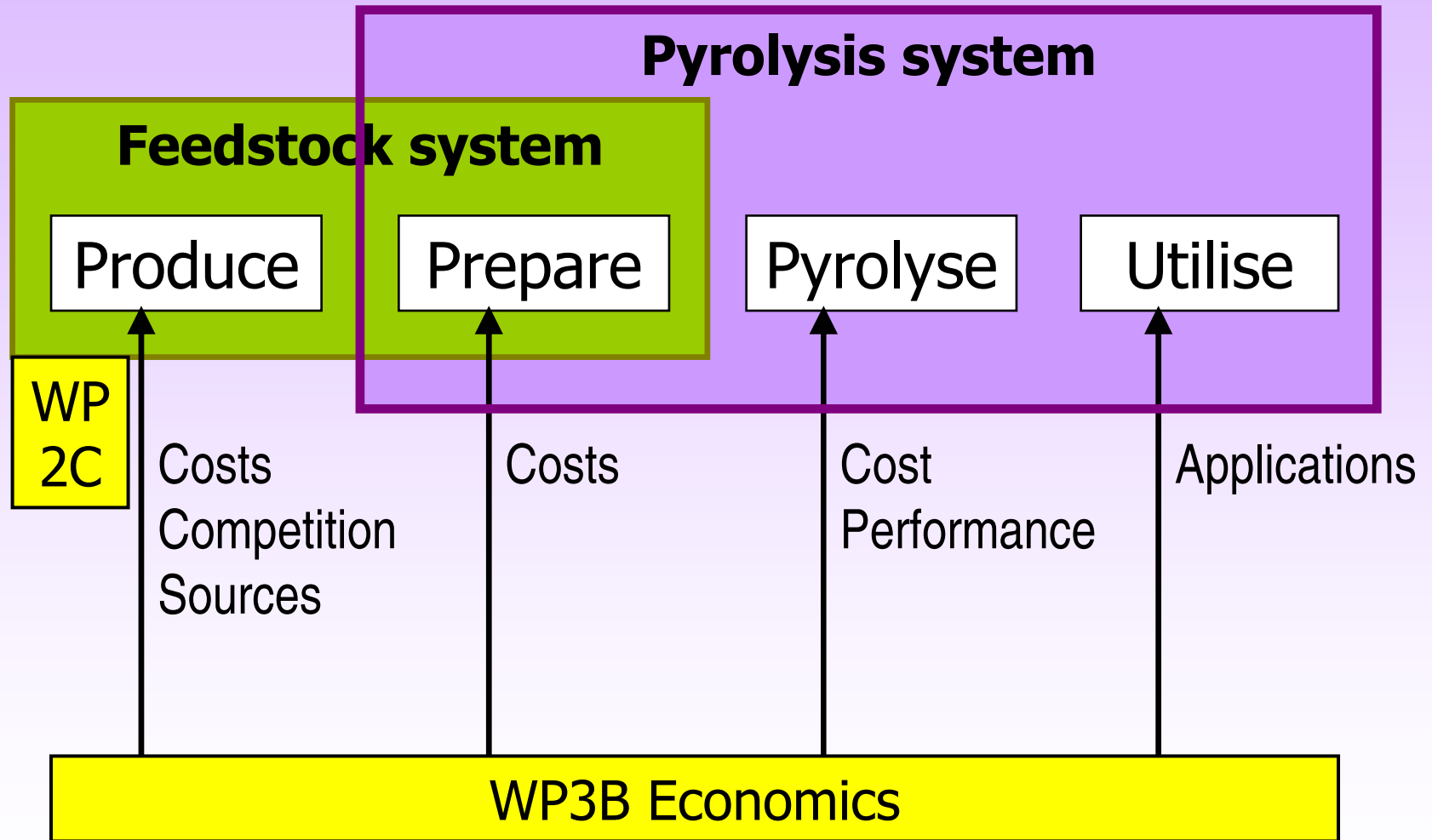
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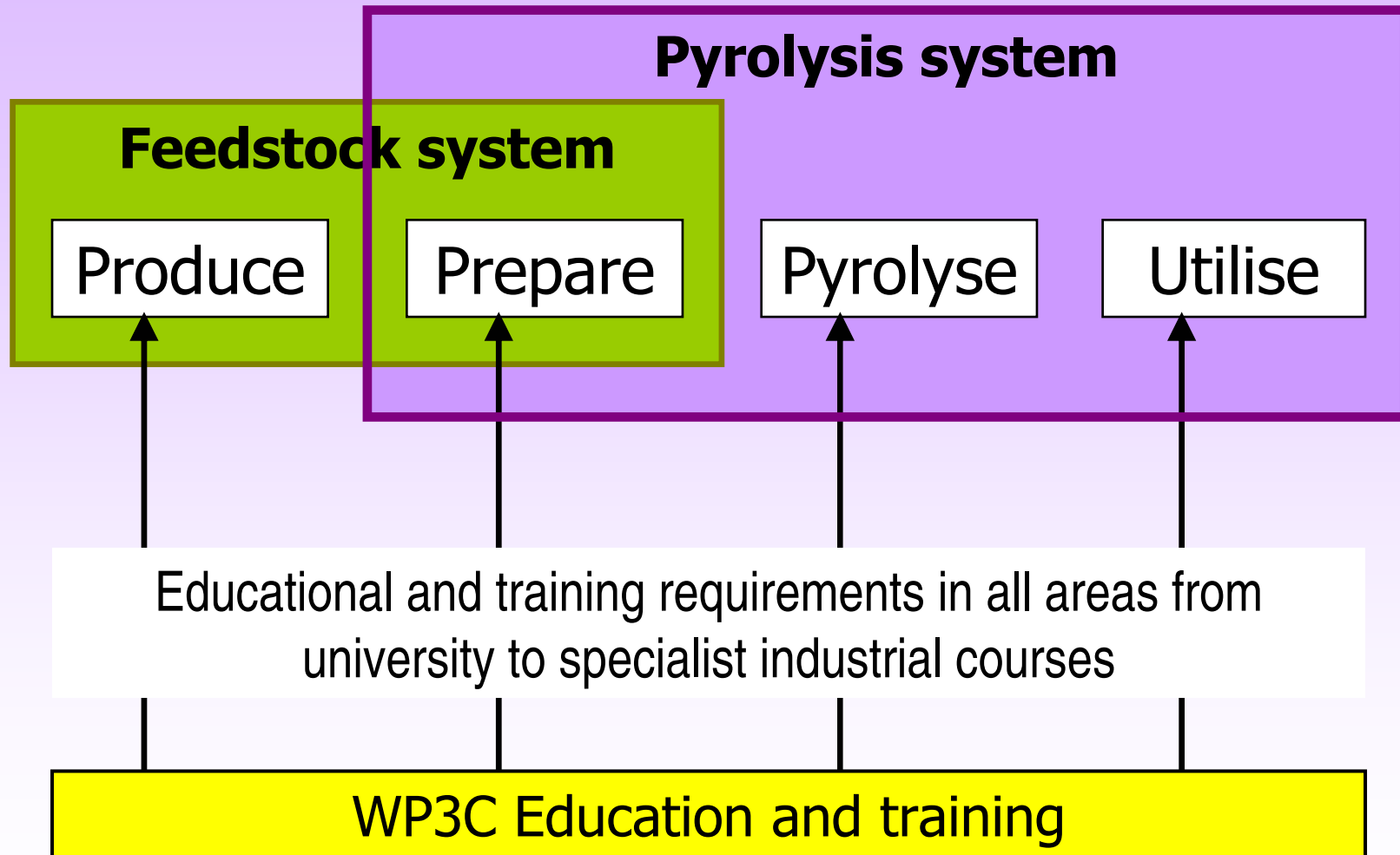
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