



# ENZYMES

## Biocatalysts for your processes

**CHT**  
SMART CHEMISTRY  
WITH CHARACTER.

Paper Solutions

# CHT ENZYMES for PACKAGING PRODUCTION

## CHT Group sustainable solutions

Sustainability is a major focus of the pulp and paper industry. Renewable and recyclable raw materials are state of the art for paper production. Aligned with the market demands and our strategy on sustainable management throughout the value chain, during the last ten years the CHT Group developed 7 generations of environmentally friendly enzyme technologies to improve the efficiency of energy management in the paper and pulp production process. In 2017 the application of CHT Enzyme technology saved approximately 5500 MWh of energy in the paper industry, which would be equivalent to one month supply of around 25 thousand households in Brazil.

## What are ENZYMES and how they work?

Enzymes are biocatalysts, which are extracted from natural raw materials or made by means of fermentation. CHT products consist of cellulases working substrate specifically. They improve the fibrillation and delamination of cellulose fibres and prepare them for the refining process. This induces less mechanical stress to the fibre and has a positive impact on paper properties. Additionally, the dewatering can be accelerated due to reduced formation of fines.

## The benefits at a glance

<b>Sustainability</b>	<ul style="list-style-type: none"><li>• Refining energy and steam saving</li><li>• Saving fibres by keeping paper properties</li></ul>
<b>Productivity</b>	<ul style="list-style-type: none"><li>• Increased production capacity</li><li>• Enhanced drainage</li></ul>
<b>Paper quality</b>	<ul style="list-style-type: none"><li>• Increased strength properties</li><li>• Improved gurley and scuff</li></ul>
<b>Chemical savings</b>	<ul style="list-style-type: none"><li>• Decrease of sizing additives</li><li>• Decrease of starch and other dry strength agents</li></ul>

## Successful industrial application

Our successful cooperation with long term customers shows that a proper choice of the enzyme together with smart application management can provide additional benefits besides the energy savings.

Depending on customer demands we develop the right approach to introduce the CHT Enzymes into the process. Smart application management offers a variety of unique opportunities to save refining energy and sizing chemicals, due to improved strength properties.

### CHT Enzymes technology in packaging production (Kraft liner)

Variable	Reference	With Enzyme	Δ
Refining Energy [kWh/t]	422.7	365.4	-13.6 %
Scuff (Passes)	70.4	95.7	+36 %
SCT [kN/m]	3.4	3.5	+3%
RCT [kN/m]	2.0	2.1	+5%
COBB	45.3	49.1	+8.4 %
Sizing [kg/t]	0.43	0.34	-20.9%

Main advantages of smart bio-refining using CHT Enzymes:

- Savings in refining energy and steam consumption
- Chemical savings
- Increased productivity
- Improved paper properties

The improved paper properties achieved with CHT Enzymes provide the following savings:

- Reduction of grammage
- Replacement of long fibres by short fibres

## Product overview

	Fibre	pH	Temperature	Effect
<b>QUMIZIME B</b>	<ul style="list-style-type: none"> <li>• Virgin fibres</li> <li>• Recycled fibres</li> </ul>	4.0 – 8.0	40 – 60 °C	<ul style="list-style-type: none"> <li>• Increased strength properties</li> <li>• Savings in refining energy</li> <li>• Chemical savings</li> </ul>
<b>ZIAX 775-D</b>	<ul style="list-style-type: none"> <li>• Virgin fibres</li> <li>• Recycled fibres</li> </ul>	4.0 – 8.0	40 – 60 °C	<ul style="list-style-type: none"> <li>• Increased strength properties</li> <li>• Savings in refining energy</li> <li>• Chemical savings</li> <li>• Accelerated drainage.</li> </ul>

You need further information?  
Please contact us under e-mail: [paper@cht.com](mailto:paper@cht.com)



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CHT GERMANY GMBH | Bismarckstraße 102 | D-72072 Tübingen | Tel +49 7071 154-0 | Fax +49 7071 154-290 | [www.cht.com](http://www.cht.com) | [info@cht.com](mailto:info@cht.com)