CHiRA
CHI Recyclability Assessment

The IT tool CHIRA was developed
by the HTP engineers and the experts of the
Institute cyclos-HTP (CHI) for the differentiated assessment of recyclability and as a
multifunctional tool for ecological packaging optimization.

What characterises CHIRA?

CHIRA is based on the current version of the CHI Recyclability Assessment, a reliable basis for investigation and certification. The CHI assessment and the CHIRA IT tool have the following characteristics:

- First assessment standard for measuring recyclability (Publication 2011)
- Development and progression based on primary scientific and practical knowledge of leading recycling experts
- Neutral and independent expert evaluation (by publicly appointed and accredited experts)
- Assessment method: transparent quantitative assessment of recyclability/ no ordinal assessment system
- Conformity to DIN EN 13430 and DIN ISO 14021
- Conformity with the German minimum standard

GERMAN PACKAGING AWARD

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- Recognized, established industry standard (industrial companies, international brand manufacturers, packaging manufacturers, packaging material manufacturers, retailers and discounters use the CHI standard for differentiated status determination as well as for packaging development and optimization)
- Scope: EU, NO, CH, UK in differentiation by countries
- Application area: Packaging of all material types
- Continuous adaptation to the latest knowledge and technical innovations

What does CHIRA 1.0 include?

In addition to the calculation of recyclability, CHIRA 1.0 provides a differentiated evaluation result for the 9 standard criteria of the CHI evaluation catalogue as well as a report with comments that can be freely edited by the user; determination of the recyclable material content, NIR simulation, automatic density calculation and much more are implemented in CHIRA. All CHIRA predictions for the individual criteria can be overwritten by measured values

CHIRA-Certification

Do you need a certificate?
CHIRA users export their input data set as a CSV file and send the required samples for comparison by the expert and for any laboratory tests that may be required.
Processing times and costs for certification can thus be significantly reduced.

Recyclability of assortment packaging fully in view

CHIRA is equipped with intelligent query menus for individual packaging types that enable the user to create assortment-packaging in a short time. In your CHIRA packaging archive, even extensive assortments can thus be fully documented, sorted and managed by article number. The option of exporting data from the archives enables further processing and data use in spreadsheets or databases, e.g. for periodic tracking of your sustainability targets.

Differentiated individual packaging optimization with CHIRA

Last but not least, CHIRA is also designed as a tool for ecological packaging optimization. Create your current packaging design in CHIRA and vary individual design details such as coloring, labeling, closures, adhesives, fillers, etc. and determine the changed recyclability by means of a few clicks thanks to the implemented copy function.

An interesting usage variant not only for packaging developers!

Continuous updating of the assessment and planned functional extensions

CHIRA 1.0 is constantly updated by the development team to reflect the latest research and technical innovation and legal requirements. The introduction of new recycling processes, the expansion of collection and recycling infrastructure in individual national states, research results on new materials and findings on the recycling compatibility or incompatibility of material combinations are implemented as part of regular updates. In addition, it is planned to further develop CHIRA functionally: Component library, guidelines check and a module for CO2 footprint calculation have already been initiated as development projects.

CHIRA is available as a standalone- and network- version as well as a customised solution.

CHIRA - System requirements

Operating system:	Windows 10 Pro / Windows 11 Pro or higher
Recommended hardware equipment:	CPU: Intel i5/i7, AMD Ryzen 5/7 or equal Memory: 8GB or higher Resolution: 1920x1080 (Full-HD) or higher
Storage requirements:	600 MB for Applikation and Database Optional 4.5 GB for .NET Framework 4.8 For each 1000 Records about 30 MB Optional additional space for Pictures, Reports, Exports

Installation instructions and licensing

- The setup is about 200 MB, it is provided via download and includes all necessary software components
- The installation requires administrator rights
- The following software packages are installed on the target system:
  - .NET Framework 4.8 (if not already installed)
  - MariaDB 10.6 64bit, (as Windows Service)
  - CHIRA Software 32bit as a standalone application
  - NuGet software libraries needed by CHIRA
- When the CHIRA desktop tool is started, a hardware key is generated (system-id). This system id is required to apply for a license. Without a valid license CHIRA is without functionality:
- The System-Id is sent to cyclos-HTP to generate valid a license.
- The customer receives a valid license file suitable for his target system.
- The license file is installed on the target system directly via the CHIRA desktop tool.
- The licensing is now completed. You can work with CHIRA.

IT security aspects

- CHIRA desktop tool is installed locally, developed on the basis of .NET Framework 4.8 with MariaDB 10 database as a relational database system. All data is stored locally in the database or on the hard disk in the file system (standalone version).

- The application does not require network or Internet access and can be used in a local environment. No connection to external servers is established (standalone version).

- To send a hardware key (system-id) for licensing, a local email client is invoked using the mailto-URI scheme if an email client is installed. For computers without e-mail and network access, the hardware key can be stored locally and transferred to a computer with e-mail and Internet access.

- All information in the hardware key (system-id) is stored as an encoded SHA256 hash. No hardware information is stored in plain text. It is not possible to draw conclusions about the target system.

Open-Source-Software

CHIRA uses the open source software listed below:

Controls (BufferedPaint, ComboTreeBox, DropDownControlBase) *BSD License (3Clause)*	DocumentFormat.OpenXML	*NuGet, MIT License*
Dapper	*NuGet, Apache License 2.0*	FastMember	*NuGet, Apache License 2.0*
DeviceId	NuGet, MIT License	MariaDB Server	*GNU GPL2 License*
MySQLConnector	NuGet, MIT License	OpenXMLPowerTools-NetStandard	NuGet, MIT License
Newtonsoft.Json	NuGet, MIT License	SimpleStack.Orm	NuGet, MIT/BSD License
Standard.Licensing	NuGet, MIT License	