OUTLINE OF THE BROCHURE

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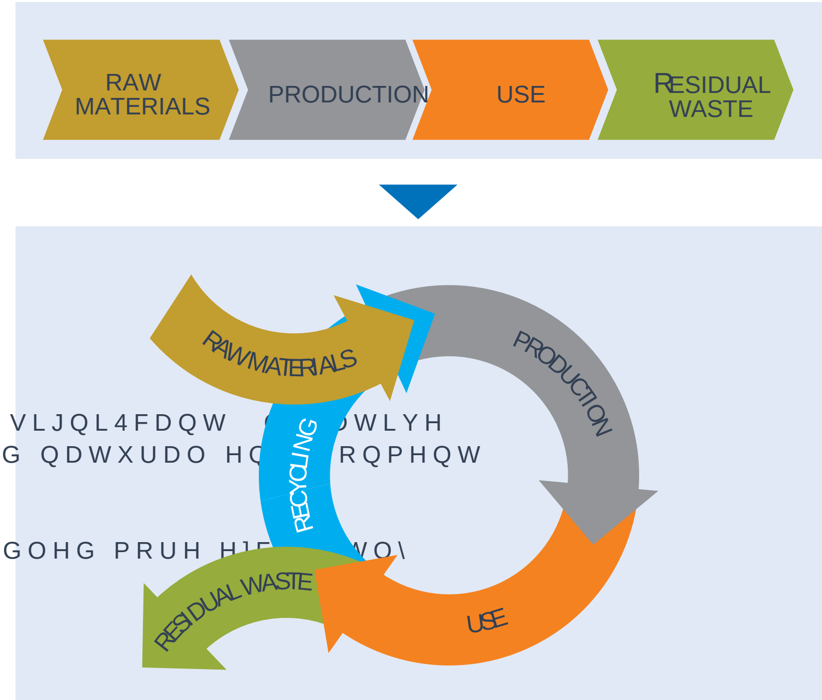
1 Circular Economy

The importance of recycling to close the loop within the value chain

Linear economy

Traditionally, the dominant practice of business in production industries has been based on a Linear Economy model: using raw materials to produce a product and indirectly a waste that needs to be further disposed.



With a growing world population, the amount of raw material requirements has increased H[SRQHQWLDOO\ FDXVLQJ VLJQLILFDQW QHJDWLYH LPSDFW RQ WKH VRFLDO DQG QDWXUDO HQYLURQPHQW In response, the only long term sustainable DOWHUQDWLYH Circular Economy, ZKHUH UHVRXUFHV DUH KDQGOHG PRUH HIILFLHQWO\

Circular economy

The Circular Economy PRGHO DLPV WR FUHDWH YDOXH IURP ZDVWH E\ UHFRYHULQJ D JHQHUDWHG ERWK LQ SURGXFWLRQ DQG XVH 5HF\FOLQJ FDQ FORVH WKH ORRS VDYLQJ ERWK HQHUJ\ DQG emissions.

A Circular Economy aims for the creation of economic value, UHYDORUL]LQJ ZDVWH DQG SURGXFLQJ ORZHU FRVW ZKLOH WKH materials and products increases.

A Circular Economy aims for the creation of social value, inspiring people and the design, HFRQRPLF JURZWK DQG to meet societal, economical and HQYLURQPHQWDO QHHGV

A Circular Economy aims for the creation of environmental value, by reducing raw material dependency and waste disposal, which contributes to an increase in the resilience of QDWXUDO UHVRXUFHV DQG contamination.

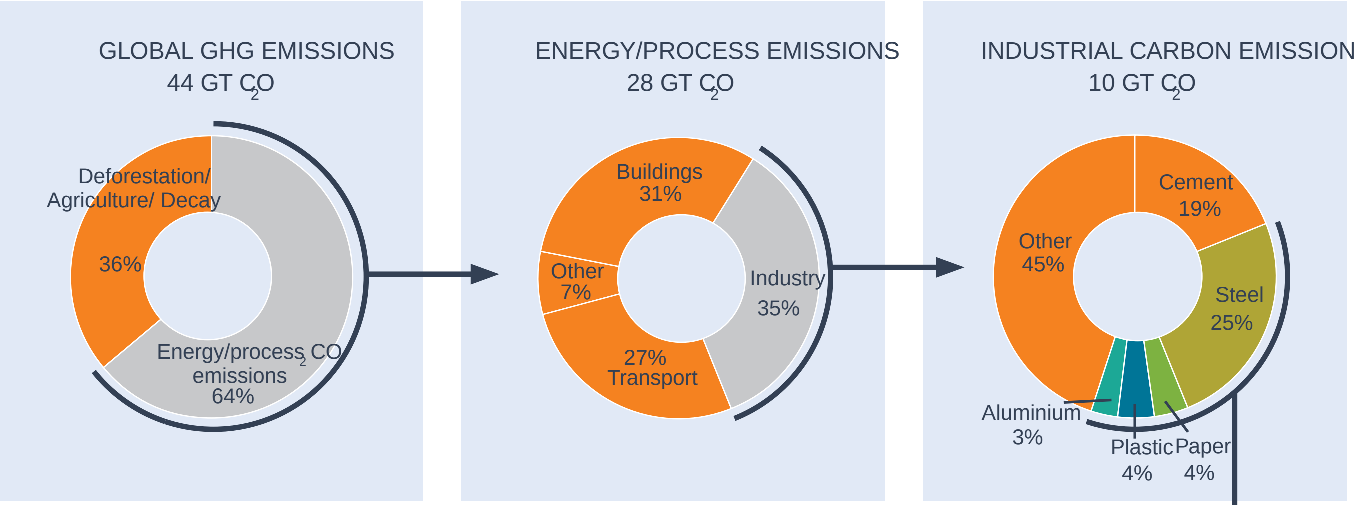
A Circular Economy is not viable without the recycling industry

5HF\FOHUV RSHUDWH DW WKH HQG DQG DW WKH EHJLQQLQJ RI WKH YDOXH FKDLQ UHLQWURGXFLQJ WKHP DW WKH EHJLQQLQJ RI WKH SURFHVV YDOXH FKDLQ

2 Recycling Industry

Environmental bene ts

Primary production related Greenhouse Gases (GHG) emissions



Source: Allwood, J.M.; and Cullen, J.M. (2011). Sustainable materials – With both eyes open, UIT Cambridge. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.592.9544&rep=rep1&type=pdf

Recycling materials saves both CO_2 and energy compared to primary production

7DEOH SUHVHQWLQJ DYRLGHG & 2 emissions and energy consumption for each recy cled material.

		CO_2 savings	Energy savings
Metal	Aluminum	92%	95%
	Steel	58%	72%
	Copper	65%	85%
Paper		18%	47%
Glass		87%	82%
Plastic	HDPE	89%	89%
	PET	70%	83%
Textiles		98%	99%
Tyres		88%	85%

Source:
- Metal - BDSV (2019). The future of the steel scrap. Technical, economic, ecological and social characteristics of steel recycling. Results of the Fraunhofer Institute's UMSICHT stu
RQ WKH IXWXUH RI VWHHO VFUDS $Q LQYHVWLJDWLRQ IRU WKH %6'9 5HWULHYHG IURP KWWSV ZZZ E
0HWDO DQG SDSHU *ULPHV 6 'RQDOGVRQ - DQG &HEULDQ *RPH] * 5HSRUW RQ WKH (QYLUR
)HUURXV DQG 3DSHU %XUHDX ... KWWSV ZZZ PJJ UHF\FOLQJ FRP ZS FRQWHQ
0HWDO JODVV SODVWLF DQG WH[WLOHV)('(5(& (QYLURQPHQWDO $VVHVVPHQW RI 5HF\FOLQJ L
IURP KWWS DYDLO... 337 5HF\FODJH_)HGHUHF_&RQJUHV_DYDQ_5H SGI
- Tyres - Aliapur (2010). Analyse du cycle de vie pour 9 voies de valorisation des pneus usages non reutilisables. R&D Aliapur. Retrieved from https://www.aliapur.fr/fr/mediatheque.html#bibliotheque

Recycling also helps to create local jobs and reduce the dependency over extra EU material supply…

2 Recycling Industry
State of the Art

What is mechanical recycling?

6RUWLQJ RI ZDVWH PHFKDQLFDO VHSDUDWLRQ VKUHGGLQJ FUXVKLQJ HWF
(GG\ FXUUHQW VHSDUDWLRQ HWF ZKLFK FDQ UHFRYHU PDWHULDOV DQG UHP

RECYCLING

Recycling-related technical speci cities

The input for any recycling operation is highly
YDULDEOH DQG LWV FRPSRVLWLRQ LV QRW KRPRJHQHRXV
the output is highly stable in content: standards and
VSHFLI4FDWLRQV H[LVW IRU UHF\FOHG PDWHULDO TXDOLW\

(J 7KHUH LV DERXW W\SHV RI UHFRYHUHG SDSHU

Waste entering the recycling facilities can contain substances of concern but the largest part is
UHPRYHG GXULQJ WKH WUHDWPHQW SURFHVVHV

(J 3E WUHDWHG GXULQJ VPHOWLQJ 7KHUH IRU %)5V GHVLJQ IRU UHF\FOLQJ
VLQN 5RDW SURFHVV

INDUSTRY

Industrial economical speci cities

5HF\FOLQJ FDQ RQO\ important YLDEOH
quantities are treated in a short time, and in
LQGXVWULDOO\ H]FLHQW SURFHVVHV
3ULPDU\ UDZ PDWHULDOV DUH IUHTXH
secondary raw materials.

As they were obtained from waste products not designed to be recycled, recycled materials may
FRQWDLQ XQZDQWHG PDWHULDOV RI

3 The Presence of Chemic als of Concern (e.g., SVHCs)

How do they af fect the r ecycling industry?

The pr esence of substances of concer n in the r ecycling pr ocess

One of the main challenges associated with the Circular Economy is the presence of substances of concern in products, which are being passed onto waste and have to be removed by recyclers.

Interface between chemical, pr oduct and waste legislation

5HF\FOHUV KDYH WR DGDSW WKHLU SURFHVVHV WR IXO4O QHZ UHTXLUHPHQWV EHLQJ UHJXODWHG RU XSGDWHV DQG HQVXUH WKDW UHF\FOHG PDWHULDOV KHDOWK DQG WKH HQYLURQPHQW 7KLV PD\ OHDG WR VLJQL4FDQW TXDQWLWLH URQPHQWDO EHQH4WV KHQFH WKH XWPRVW QHHG WR HQVXUH WKDW DVVHVV FRQVLGHUDWLRQ ZDVWH LQWULQVLF SURSHUWLHV DQG VDIH HQG XVHV RI UHF

CHEMICALS → PRODUCTS → WASTE LEGISLATION IN PROGRESS

Plastics from WEEE and ELV

DecaBDE

3%'(V DUH VWULFWO\ UHJXODWHG E\ 5HF\FOHUV KDYH GHYHORSHG VWDWH WR VHSDUDWH 323 IUHH SODVWLFV IU 3%'(V)RU LQVWDQFH FRQFHQWUDWL IURP XVHG &57 79 FDQ EH DERXW KLJKHU WKDQ WKH DSSOLFDEOH FRQF 'LVSURSRUWLRQDOO\ ORZHU WKUHV FRQWHQW FRQFHQWUDWLRQ FRQVLGH RI WKH %DVHO &RQYHQWLRQ ZRXOG recycling in Europe.

Synthetic turfs made from EoL tyres (ELT)

PAH

REACH restriction on granules or mulches containing more than 20 ppm of polycyclic aromatic hydrocarbons 3$+ DQG XVHG DV LQ4OO PDWHULDO

Window frames, blinds, pipes

PVC

The European Commission's proposal, based on ECHA's UHVWULFWLRQ GRVVLHU IRU OHDG LQ WUDWLRQ OLPLW IRU OHDG LQ DUWLF XS WR IRU VRIW 39& DQG XS WR IR to be safe for human health and the environment given 39& V LQWULQVLF SURSHUWLHV DQG H GHURJDWLRQ ZRXOG UHVXOW LQ ODC VXEVWDQWLDO QHJDWLYH HQYLURQP negate the Circular Economy.

Disproportionate threshold values, disregarding sound risk assessment for safe end-uses, would exclude KLJK TXDOLW\ UHF\FOLQJ SURFHVVHV IRU WKRVH HOHPHQWV UHVXOWL

How can substances of concer n in r ecycled pr oducts be avoided if primary pr oducts contain them?

As recyclers cannot avoid the presence of the substances in the material, improving the interface between chemical – product – waste legislation is fundamental to promote recycling and foster a more Circular Economy.

Main concerns from the recycling sector regarding the interface chemical – product – waste legislation

Recyclers treat millions of different EoL products per day. While producers are aware of the substances used within their processes, **identification** of individual substances by recyclers in the input of their activities can be challenging .

There is a lack of practical and easily accessible information on regulated substances for recyclers.

Waste treated by recyclers may contain substances that are no longer allowed in new products (i.e., legacy substances).

EU rules on end-of-waste are not fully harmonised , and different Member States have different classifications for the same type of waste.

Eco-design considerations are crucial for constantly improving recycling rates. However, it is mostly focused on addressing the issue of energy efficiency, and less on the recyclability potential.

Imported articles that are not subject to authorisation requirements, may lead to a competitive disadvantage for EU producers and recyclers who are subject to REACH authorisation.

In addition, waste classification, as dangerous or not, is set on a hazard - based legislation and takes only partially into account the risks posed by a waste stream. Waste is, by nature, very different to products for which hazard based legislation is designed.

Difference between HAZARD and RISK perspective

Substances found in waste are not per se harmful for human health or the environment. For instance, arsenic and caffeine both have hazardous properties, but do not present the same level of risk.

RISK = Hazard x Exposure

HAZARD – Refers to the inherent properties of a chemical substance that make it capable of causing harm to a person or the environment.

EXPOSURE – Describes the amount of, and the frequency with which, a chemical substance comes into contact with a person or the environment.

RISK – Is the possibility of harm arising from a particular exposure to a chemical substance.

4 Potential Solutions and Future Work

to address the concerns on this topic

Enforcement
of chemicals
legislation at EU
ERUGHUV
It should simply not be allowed to import articles that are not FRPSOLDQW ZLWK (8 UXOHV LQVLGH (8

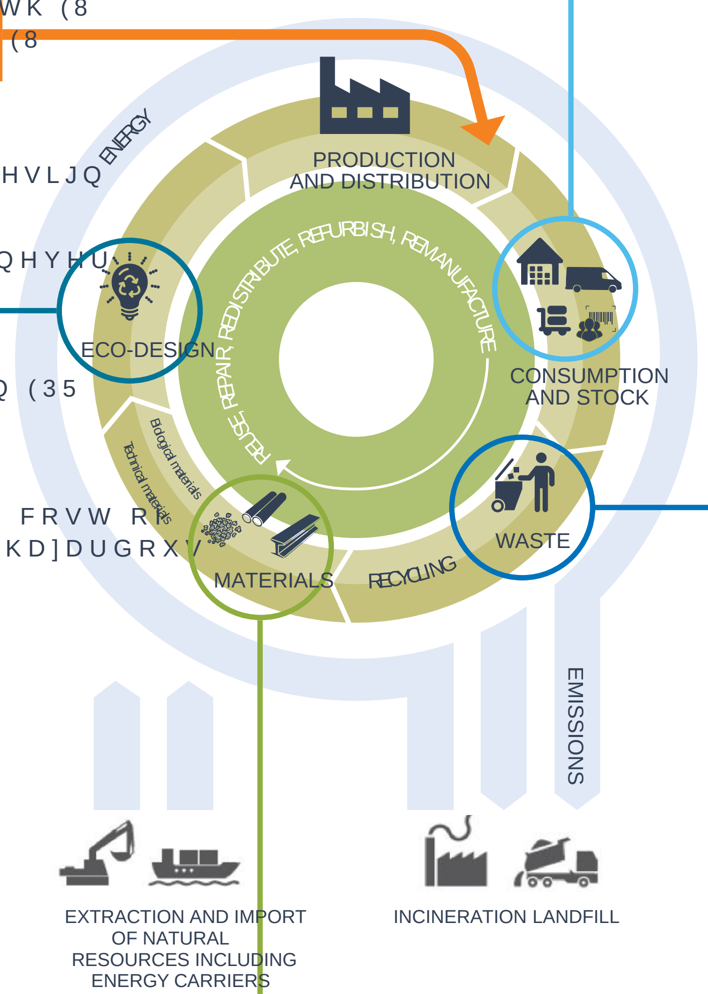
Better tracking of substances of concern
'HYHORS D UHJXODWRU\ IUDPHZRUN HQDEOLQJ WUDFN
substances of concern in close collaboration with recyclers, in order to be practical and support their real needs.

3URSHU ULVN EDVHG Z
FODVVL4FDWLRQ
:DVWH FODVVL4FDWLRQ
take into account the risks posed by a waste stream,
QRW RQO\ WKH KD]DUG
related to their chemical composition.
(J FXUUHQW KD]DUG
WKUHVKROGV DUH XQ4
ZDVWH FODVVL4FDWLRQ
are not complemented by broader risk assessment, taking into account exposure parameters.

+DUPRQL]HG ZDVWH
OHJLVODWLRQ ZLWKLQ
6DPH ZDVWH FODVVL4F
EHWZHHQ GL•HUHQW
0HPEHU 6WDWHV 7KLV
could be extended to any regulation enforcement, as discrepancies in enforcement among
0HPEHU 6WDWHV VKRX
PLQLPL]HG

6SHFL4F VWDWXV IRU
SURFHVVHG ZDVWH
3RWHQWLDOO\ PRYH R
GLFKRWRP\ EHWZHHQ
DQG SURGXFW VWDWX
KDYLQJ DQ LQWHUPHGL
category for processed waste.

3URPRWH HFRGHVLJQ
for circularity by any means available
$YRLGLQJ ZKHQHYHU
possible, the use
RI KD]DUGRXV
substances. In the
DEVHQFH RI DQ (35
scheme or any agreement with manufacturers
FRYHULQJ WKH FRVW RI
HOLPLQDWLQJ KD]DUGRX
substances in waste, recyclers should not be responsible for bearing the costs of it.
–PSURYH WKH
recyclability of products by taking into account the recycling process constraints at design stage.



5XOHV IRU VHFRQGDU\ PDWHULDOV WDNLQJ LQWR DFFRXQW ZDVWH LQWULQVLF
6HW UHVWULFWLRQV ZKLFK DUH VWDEOH LQ WLPH DFKLHYDEOH DQG UHDOLVWL
DQG UHWDLO PDQXIDFWXULQJ VHFWRU KDYLQJ GHURJDWLRQV IRU OHJDF\ VXEVW

- *HQHUDO GHURJDWLRQ IRU OHJDF\ VXEVWDQFHV LQ UHF\FOHG PDWHULDOV (J 5($&+ D
- 7LPH OLPLWHG GHURJDWLRQ WR DOORZ WKH UHF\FOLQJ RI PDWHULDOV DQG WR SUHVHUYH D VRXQG UHF\F VXEVWDQFHV (J WLPH OLPLWHG GHURJDWLRQ WR 5($&+ UHVWULFWLRQ IRU W time limit of derogation could be based on article lifecycle.
- 8VDJH OLPLWHG GHURJDWLRQ ZKHQ KD]DUGRXV VXEVWDQFHV DUH SUHVHQW EXW UH

6RXUFH ((\$ &LUFXODU E\ GHVLJQ 3URGXFWV LQ WKH &LUFXODU (FRQRP\ (XURSHDQ (QYLURQP

EuRIC

(X5–& \$–6%/ 5HF\FOLQJ %ULGJLQJ &LUFXOD
%RXOHYDUG \$XJXVWH 5H\HUV % %UXVV
ZZZ HXULF DLVEO HX

SOUND MANAGEMENT OF WASTE & CHEMICALS REQUIREMENTS BY THE RECYCLING INDUSTRY

EuRIC

EuRIC AISBL – Recycling: Bridging Circular Economy & Climate Policy