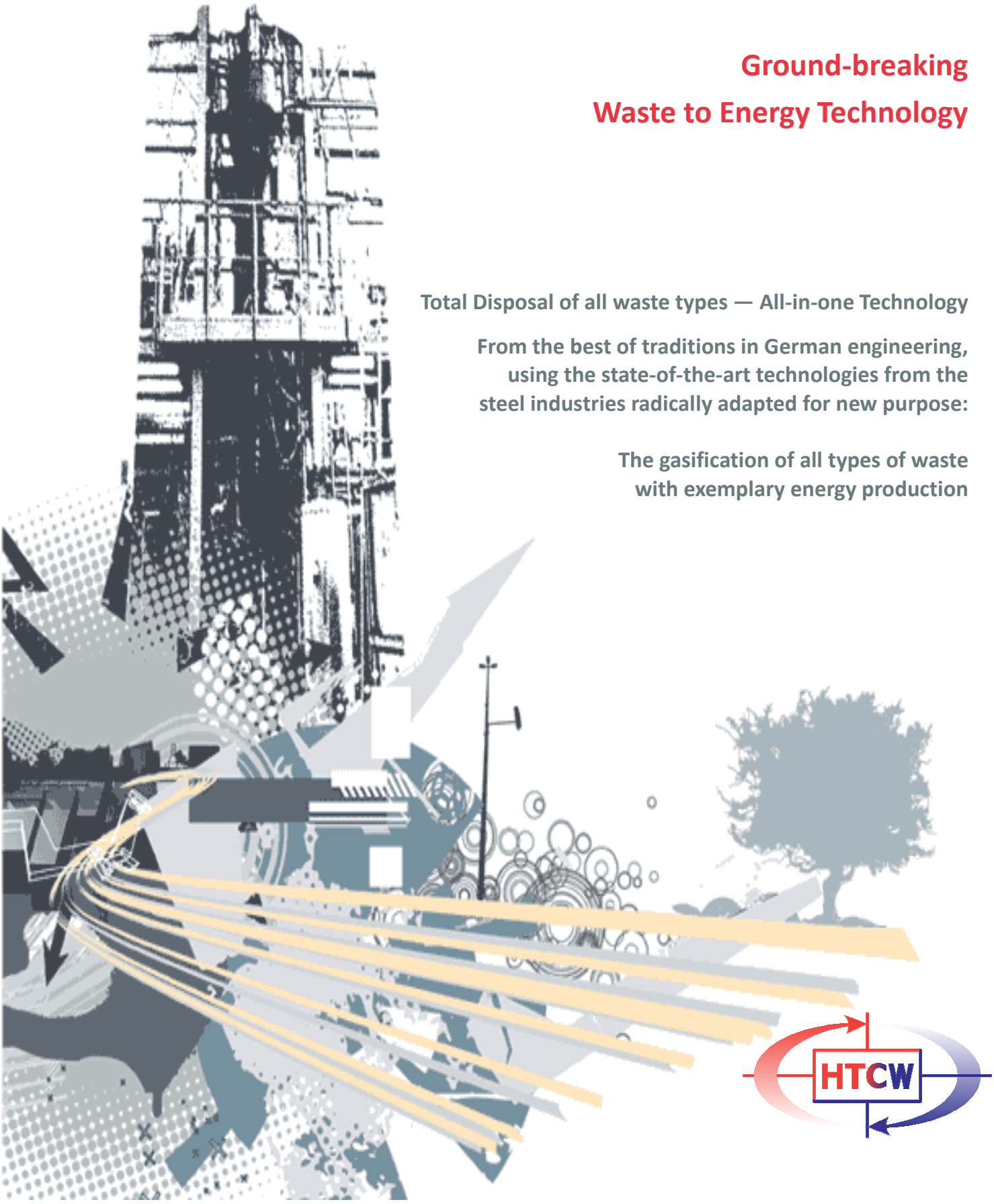
HTCW

High Temperature Conversion of Waste



Ground-breaking
Waste to Energy Technology

Total Disposal of all waste types — All-in-one Technology

From the best of traditions in German engineering,
using the state-of-the-art technologies from the
steel industries radically adapted for new purpose:

The gasification of all types of waste
with exemplary energy production

HTCW pushing the boundaries of waste processing

- HTCW patent gasification process transforms 97-99% of all types of waste into gas, heat, steam and electricity (or diesel, gasoline, methanol).
- Independent studies show HTCW's superior net energy efficiency and clean syn-gas production, assuring long-term energy price stability.
- One single site plant instead of different technologies for different types of waste. Gasification of all waste types with high & low CV's mixed, needing no pre-sorting or shredding, thus giving control of profit targets.
- Zero emission and no ash residue, leaving 1 - 3% dust and salts. With HTCW "Zero Waste" now becomes a reality, also reducing disposal costs.
- Scalable from small single or multi-location sites to large industrial plants. Economically integrated into existing infrastructures.

Environmentally safe and operating between 1500°C (2700 F) and 2500°C (4500 F), HTCW can process mixed municipal and industrial waste such as:

Toxic Waste	**Electronic Scrap**	**Industry Waste**
Lacquers	**Asbestos**	**Compound Materials**
Paints	**Scrap Metal**	**Oil Sludge**
Scrap Tires	**Clinical Waste**	**Coal Gangue**
Rubber	**Paper**	**etc. ...**

... in fact, anything except nuclear waste

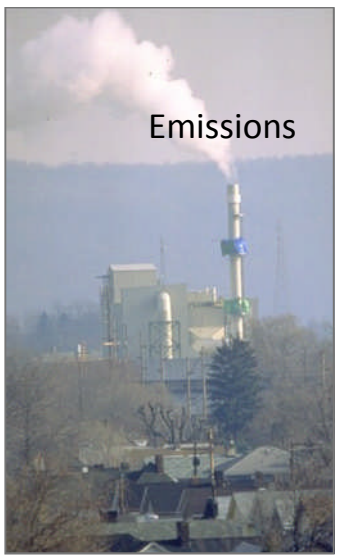
HTCW vs Incineration

Now:

Incineration

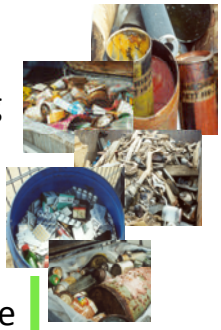
Sorting needed

100% Waste



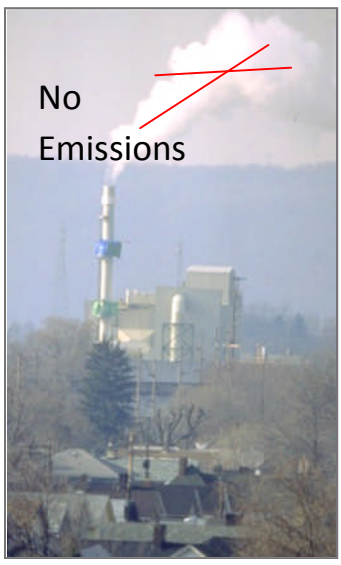
The Future:

HTCW

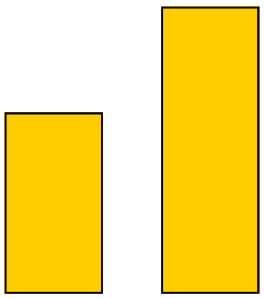


No Sorting needed

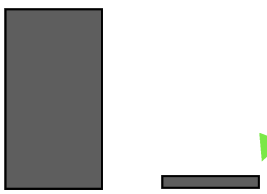
100% Waste



Produced Energy



Landfill



About 30%

About 1-3 %

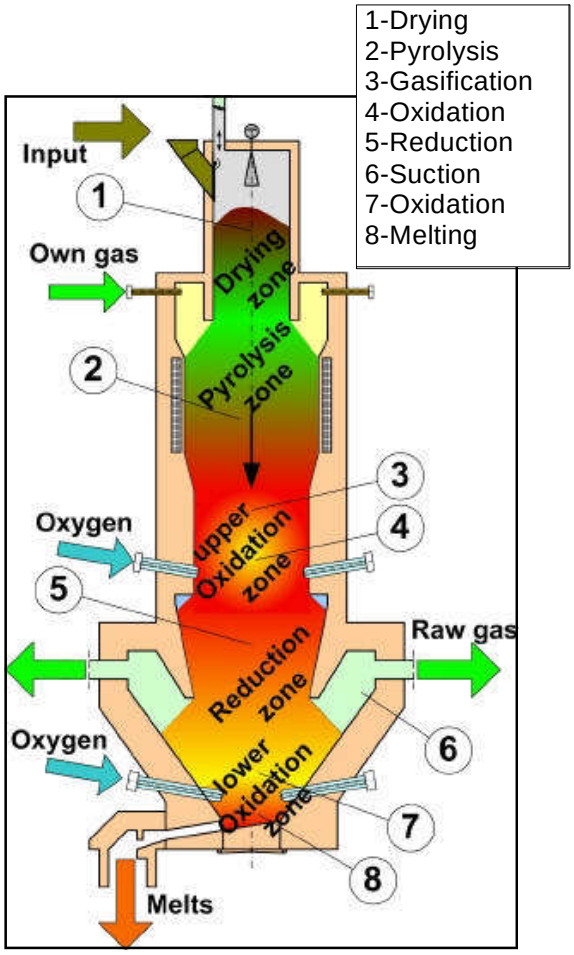
HTCW

Zero Emissions!

Total Disposal!

Higher Efficiency!

Internal Process Steps



Input: Feed materials (waste) and additional materials (e.g. coke, limestone) at normal temperature and pressure

100 to 200°C:
Drying of input; elimination of physical water

250°C:
Deoxidation; desulphuration; elimination of constitution water and CO_2; depolymerisation

340°C:
Cracking of aliphatical bonds; beginning separation of CH_4 and other aliphates

380°C:
Carbonization

400°C:
Break-up of C-O and C-N bonds; separation of heteroatoms

400-600°C:
Conversion of bitumen into smoldering oil and smoldering tar

>600°C:

Cracking of bitumen into thermally stable substances (short chained, gaseous hydrocarbons); synthesis of aromatic hydrocarbons

800-1,200°C

Gasification: Synthesis of N_2/NH_3 and H_2S/COS; halogens are completely in the vapour state (as alkalichloride or HCl)

Melts: Synthesis of mineral melting phases

1,200-2,000°C

Complete decomposition of aromatic hydrocarbons, HCN and organic chlorine compounds; formation of carbon black

Melts: Synthesis of iron metallic melting phases

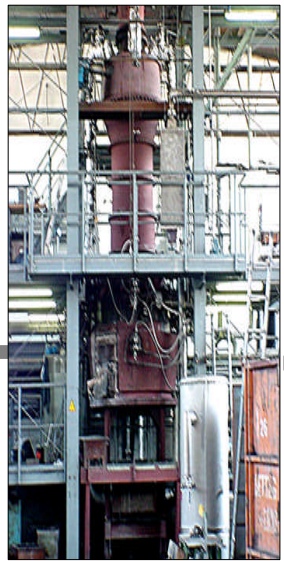
2,000°C-2,700°C

Beginning of molecular dissociation; lower plasma region

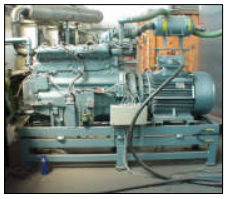
From Waste to Value (Income Sources)

Feed Material

HTCW Process



Electricity and Heat



or

Methanol or Diesel

or

Synthesis Gas

Direct delivery to an External User

Meltings

Metal Alloy

and

Mineral Slag

Heat

Water Desalination

Heat Exchanger

Drinking Water

Thermal Energy

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