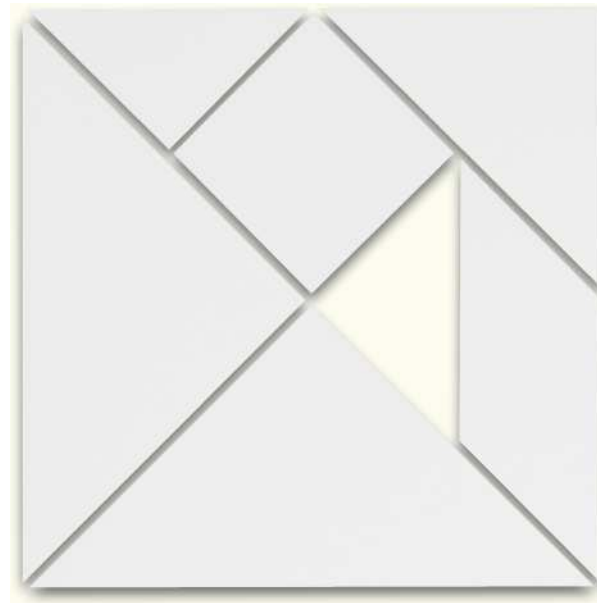


IMSAD



3. International Quality in Construction Summit 2011

Istanbul

November 2011

Dr. Sabine Fisbeck-Groh, BASF SE Sustainability Center

BASF – The Chemical Company

The worldwide leading group in Chemistry business



- Our products are applied to nearly all industries
- We combine economical success with social responsibility and protection of our environment
- Turnover 2010: 63.873 Mio. €
- EBIT 2010: 7.761 Mio. €
- Employees (12/31/2010): 109.140
- Approximately 1.100 new patents applied
- 6 Verbund sites and approximately 390 production sites



Integration of the three pillars

Sustainable Development

Economy



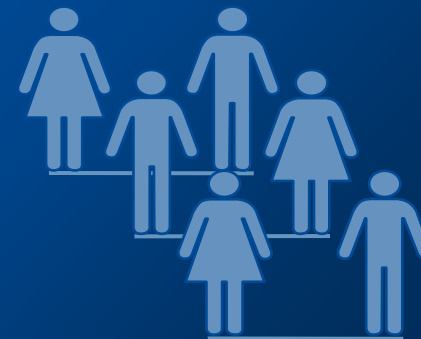
Create
value

Environment



Provide
solutions

Social Responsibility



Generate
trust

What does Sustainable Development mean?

- Sustainability is not a static condition but something one needs to strive for



Continuous improvement

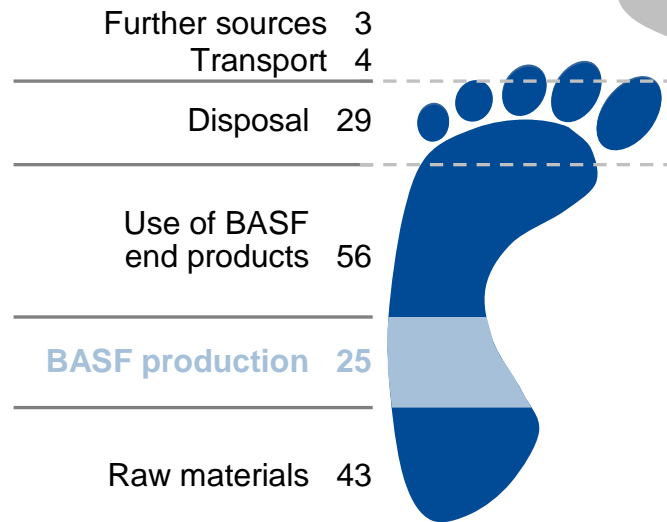


BASF takes action: BASF's Corporate Carbon Footprint 2010




Emissions along the entire
value chain [million t CO₂e/a]:


**We reduce
emissions
along the
value chain.**



Avoidance of emissions
322 million t CO₂e/a

**We help our
customers to
shrink their
carbon footprint.**

 CO₂e-emissions BASF production
(GHG Protocol Scope 1&2)

 CO₂e-emissions along the value chain
(GHG Protocol Scope 3)

CO₂e-emissions caused by customers [million t CO₂e/a]:

 Without the use of BASF products: **1720**

 With the use of BASF products: **1398**

BASF takes action: Products for climate protection



We spend around one third of our research and development expenditures on developing new energy efficiency and climate protection solutions.

In 2010, we generated 12% of our sales with our climate protection products*.

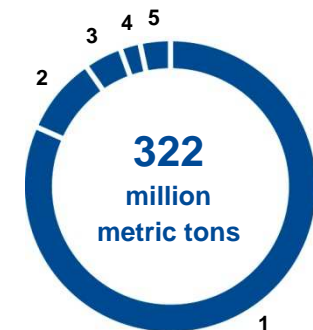
Examples of our products for climate protection:

- Insulation material
- Cement additives
- Fuel additives
- Industrial catalysts

Avoidance of greenhouse gas emissions through the use of BASF products by sector

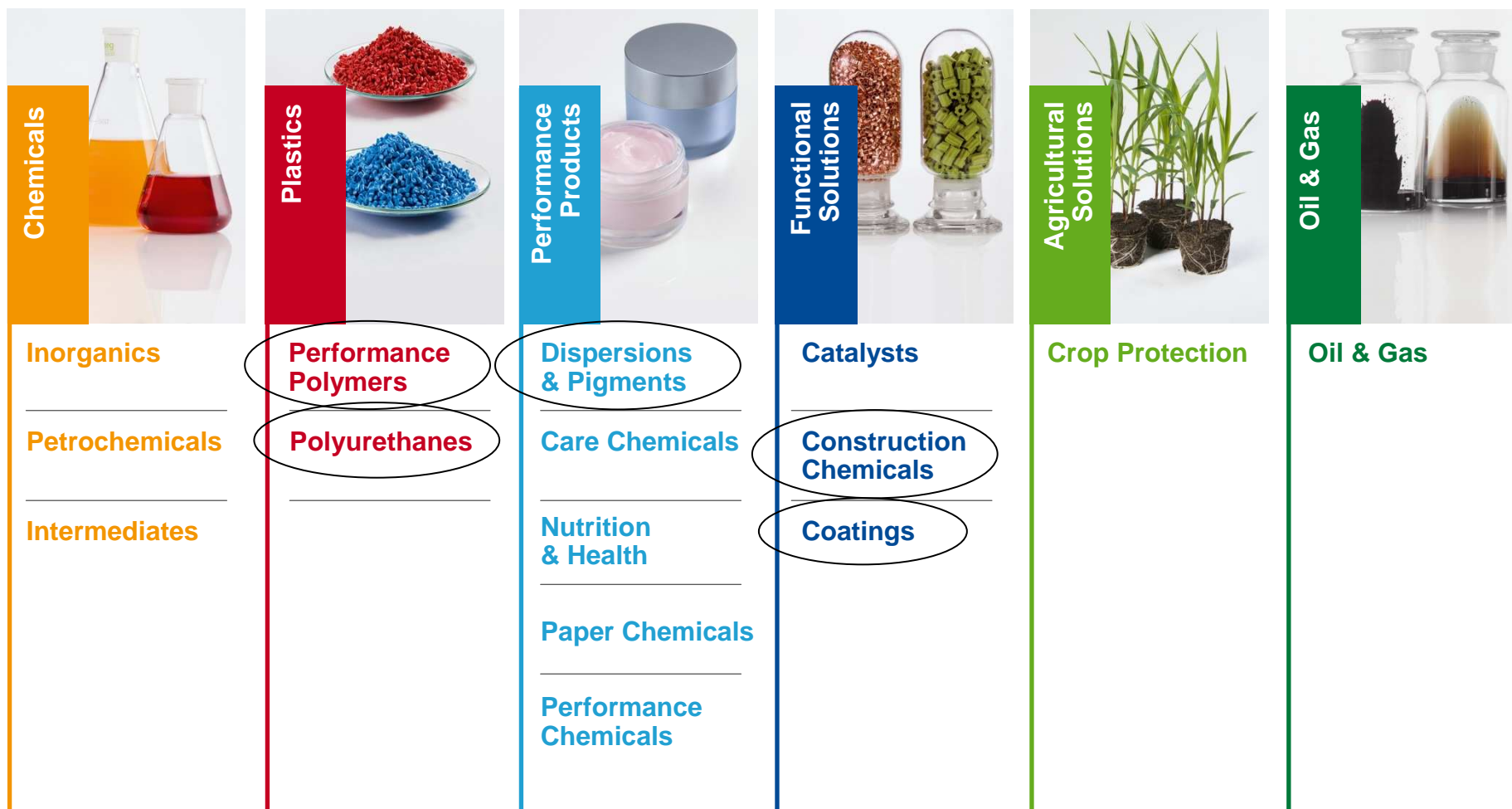
(in million metric tons of CO₂-equivalent)

1	Housing and construction	263
2	Industry	28
3	Transport	14
4	Agriculture	7
5	Other	10

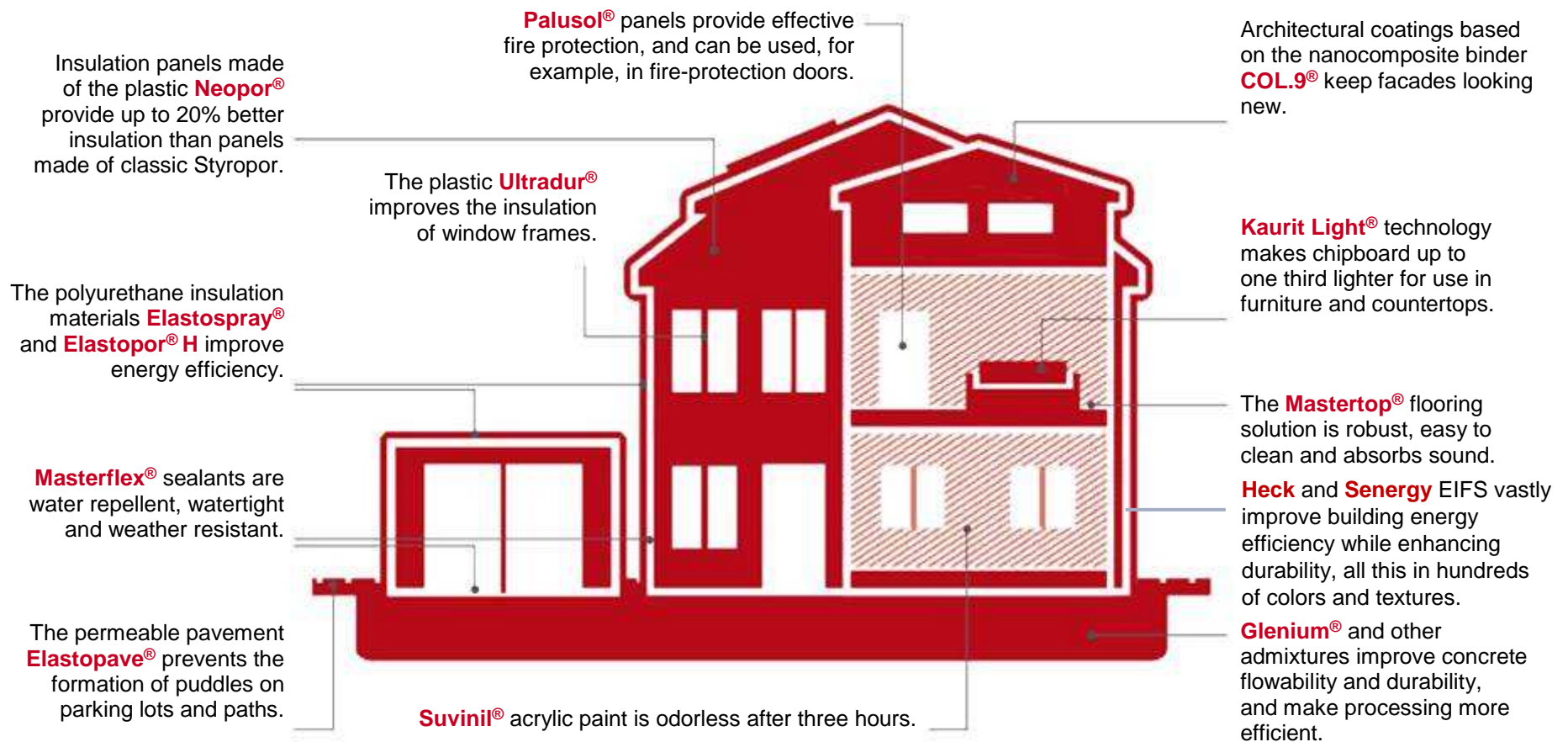


* Climate protection products are product groups that when used avoid at least twice as much CO₂ as is emitted during their production and disposal.

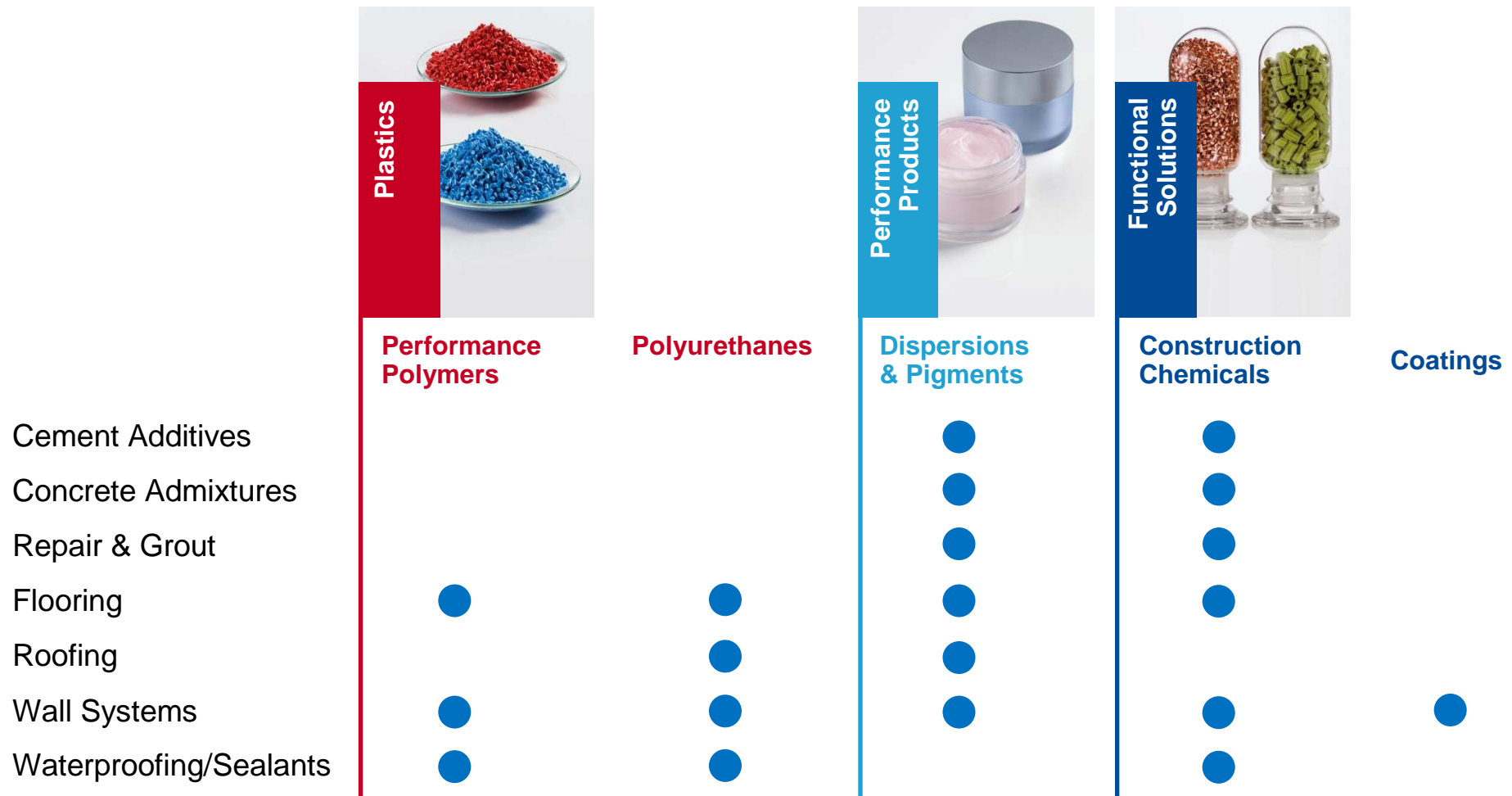
BASF Segments – Relevance for Construction



BASF takes action: BASF products for houses



Examples of Cross-BU Value Chains



Fit of Value Chains into Megatrends



Fast & easy
Construction



Systems



Green Building



Energy
Efficiency



Design & Style



Health &
Comfort

Cement Additives				●		●			●
Concrete Admixtures	●			●		●			
Repair & Grout	●		●	●					
Flooring	●			●				●	
Roofing			●	●		●			
Wall Systems			●	●		●			
Waterproofing/Sealants	●		●			●			

BASF takes action: Fewer CO₂ emissions and no heating costs

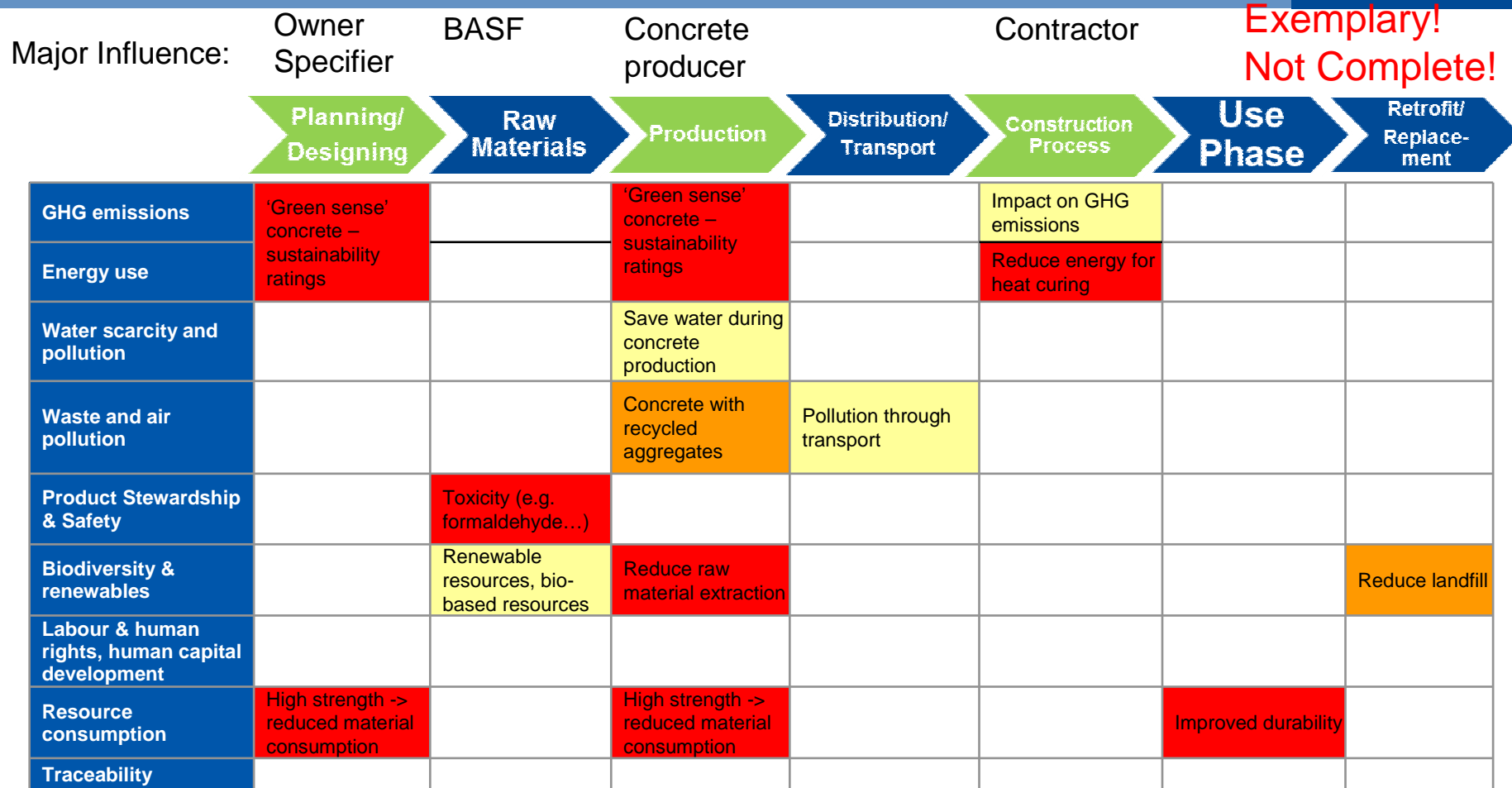
Ludwigshafen – zero-heating cost house

- Comprehensive construction concept
- Thermal insulation with Neopor®
- Triple-glazed windows
- Solar cells to generate hot water on the southern side
- Photovoltaic panels on the roof to generate electricity
- Modernizing an 100 m² apartment to a 7 liter standard can save
 - 1,300 liters of heating oil a year *
 - 3.9 tons of CO₂ emissions a year

* Heating cost 85 Cent/l



Value Chain Concrete Admixtures – Examples of Topics



Tools for Sustainable Development

Eco-Efficiency Analysis

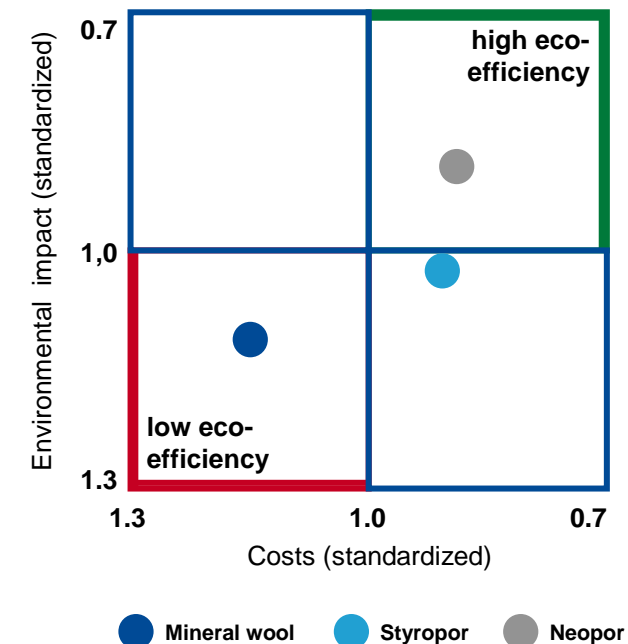
- Strategic instrument for internal decisions, developed by BASF
- Economic and environmental advantages and disadvantages of products and processes are jointly considered and compared
- Entire life cycle taken into account
- Over 450 Analysis
- Higher eco-efficiency means greater customer benefits with respect to costs and environmental burden

SEEBALANCE®

- Integrated assessment of economic, environmental and social aspects of products and processes

Customer benefit from using 1m² of thermal insulation composite system

Eco-Efficiency Analysis of thermal insulation composite systems based on the example of the 3-liter house in the Brunck district of Ludwigshafen in 2000, confirmed by Germany's Öko-Institut Freiburg. The method was validated from Technical Inspection Association (TÜV).



Speeding up concrete hardening

X-SEED® - a unique hardening accelerator and core product of the Crystal Speed Hardening™ concept speeds up concrete hardening significantly at early ages (6-12 hours) at low, ambient and heat curing temperature

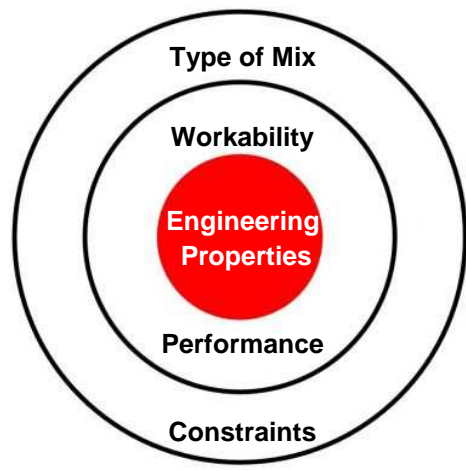
- More efficient processes
- Material optimization, reduction of CO₂ emissions
- Lower energy consumption
- High quality specifications



Eco Profile Manager: Example Green SenseSM Concrete



Start with an existing reference mix



BASF

Advanced Level of Mix Optimization

Region	Chemistry	Recipe
Available Materials Reactivity Levels Regional Admixtures	Novel Chemistry Custom Molecules Rheology Slump Retention	Characterization Gradations Custom Software Proportioning Expertise

**Cash and carbon
costs are
minimized!**

**Customized Specific Green SenseSM
Concrete Mix Design**

Green SenseSM Concrete: Customized Mix Optimization



Sustainability threats to the concrete industry include

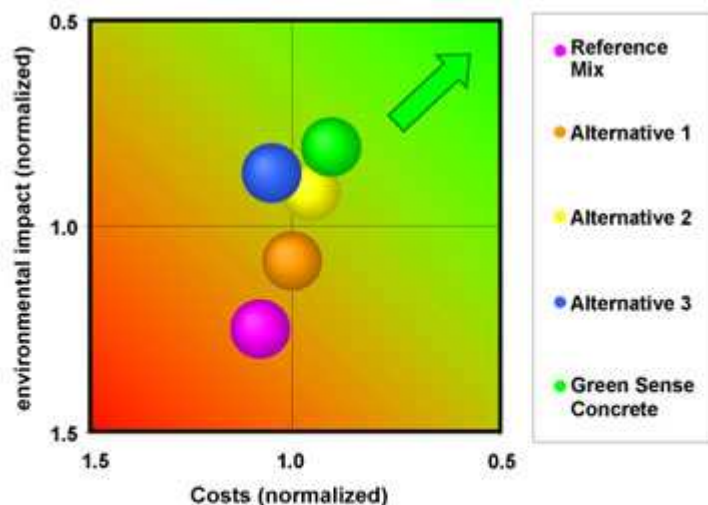
- Cement production carbon emissions
- Energy Intensity/Usage
- Natural Resource Depletion
- Health – noise, particulate emissions etc.
- Water Quality



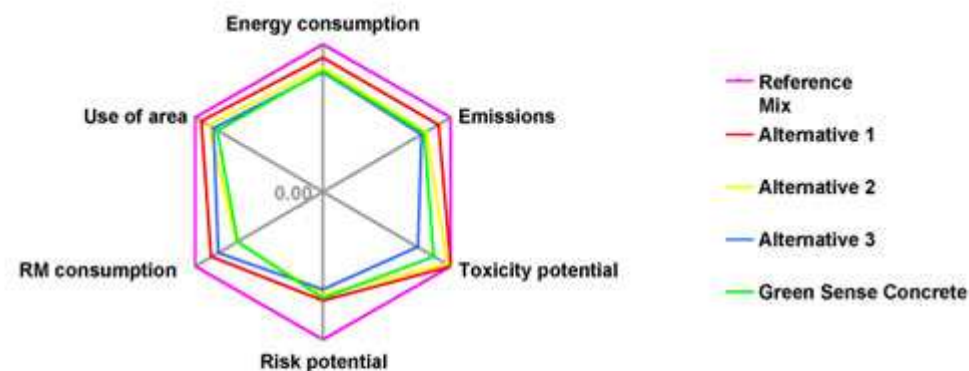
Green SenseSM concrete Customized mix optimization

Supplementary cementitious materials and non-cementitious fillers are used with BASF chemical admixtures to meet or exceed performance targets.

Green SenseSM Concrete: Eco Efficiency Portfolio and Fingerprint

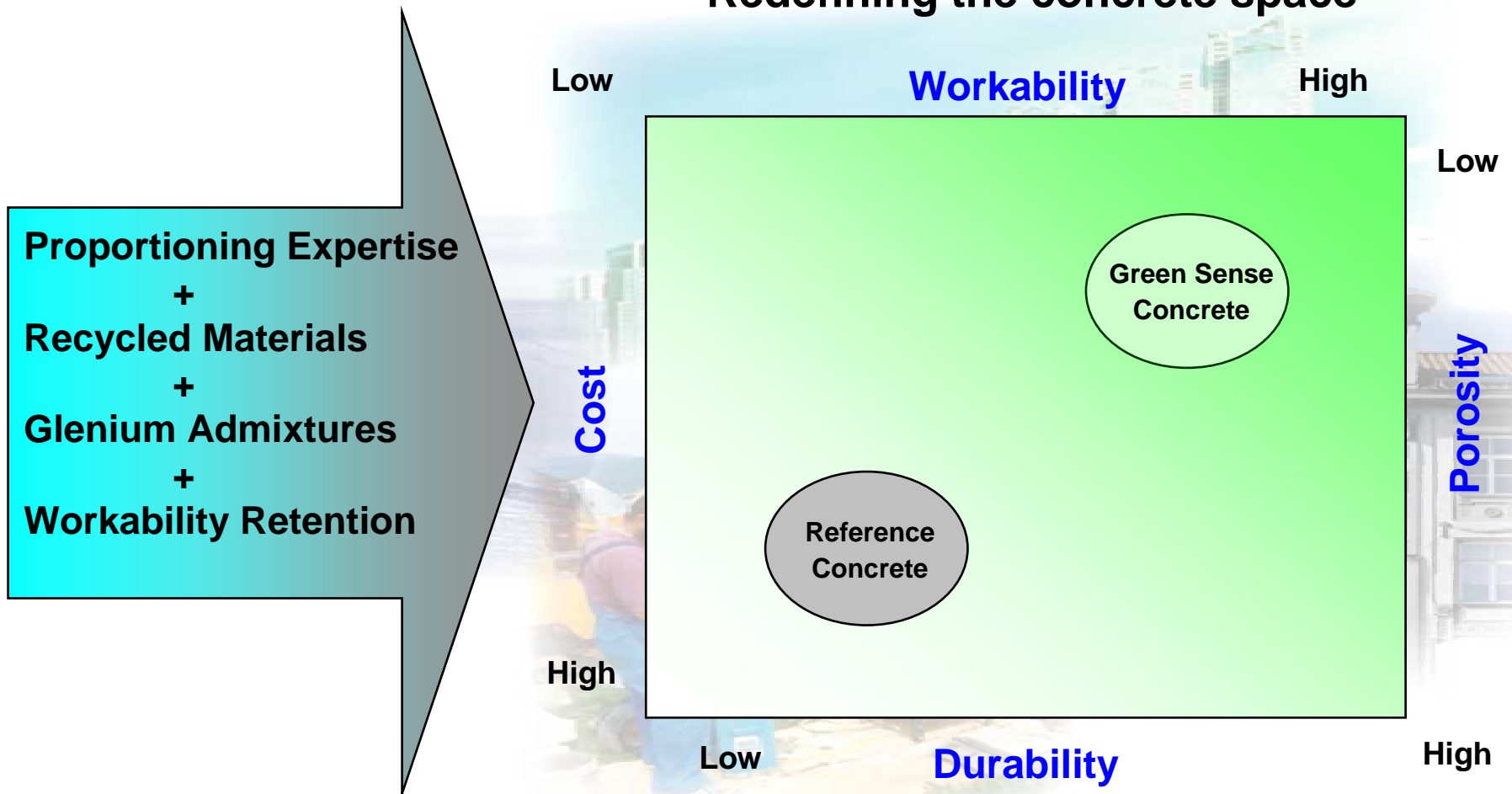


The Green Sense Concrete mix has the lowest overall environmental burden and is the most economical to produce.



The four concrete alternatives are shown to be progressively more environmentally preferable in relation to the Reference Mix.

Redefining the concrete space



Green SenseSM Concrete Benefits



Producer

- Optimized and economical concrete composition costs
- Faster truck discharge time – better fleet utilization
- Desired setting time, slump retention, and strength performance
- No water needed at jobsite – less performance issues/callbacks due to water addition – reduced claim potential

Contractor

- High flowable slump concrete
- Good workability, pumpability and finishing characteristics
- Faster placement and production
- Consistent concrete performance

Owner

- Desired durability performance
- Lower shrinkage and cracking potential
- Contributes towards LEED credits

Environmental Agencies/Community

- Less cement used per unit of concrete produced and, therefore, less energy and CO₂ emission
- Less by-product materials targeted for landfill
- Lower overall environmental impact



The Chemical Company

Tools for Sustainable Development

Strategic Analysis

- **Eco-Efficiency Analysis**
- **SEEBALANCE®**

Performance Measures and Risk Management

- **Audit:**
Environment
Health
Safety
- **Social Performance Assessment**

Supplier Relations

- **Audit:**
Quality
Safety
Environment
Health protection
Social standards
- **Supplier Days**

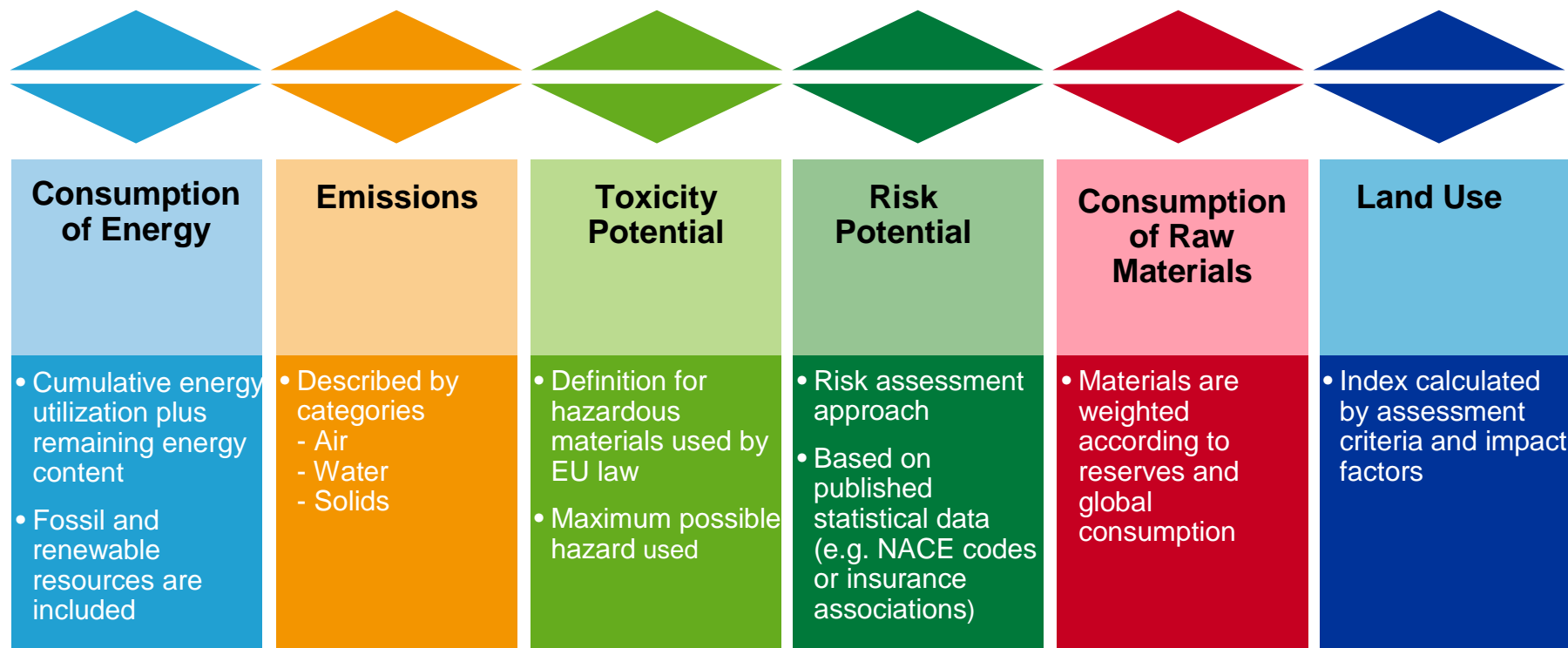
Customer Relations

- **Success –**
Added Value through
Sustainability

Eco-Efficiency Analysis

Existing Environmental Categories

Environmental impact over the entire life cycle*



*Data acquisition and calculation is done according to ISO 14040 and 14044 (ecological part)