

Critical Task Exposure Screening CTES

Screening Tool for Chemical Risk Assessment



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Chemical risk assessment methodology

New approach for chemical risk assessment developed within Solvay:

- Chemical inventory – Data collection
- Screening
- Detailed analysis – Exposure modeling
- Monitoring

Chemical risk assessment methodology

New approach for chemical risk assessment developed within Solvay:

- Chemical inventory – Data collection
- **Screening = CTES**
- Detailed analysis – Exposure modeling
- Monitoring

CTES = Risk assessment

**Hazard
identification**

+

**Exposure
potential**

=

**Risk Screening:
CTES score**

CTES Critical **T**ask **E**xposure **S**creening

Hazard identification

Physical properties

Physical state:
Solid or liquid
Capacity to become airborne:
Liquid >> Vapor pressure

Solid >> Dustiness

Hazard data

SAELs
(internal limits)

OELs

OEBs
(Hazard banding)

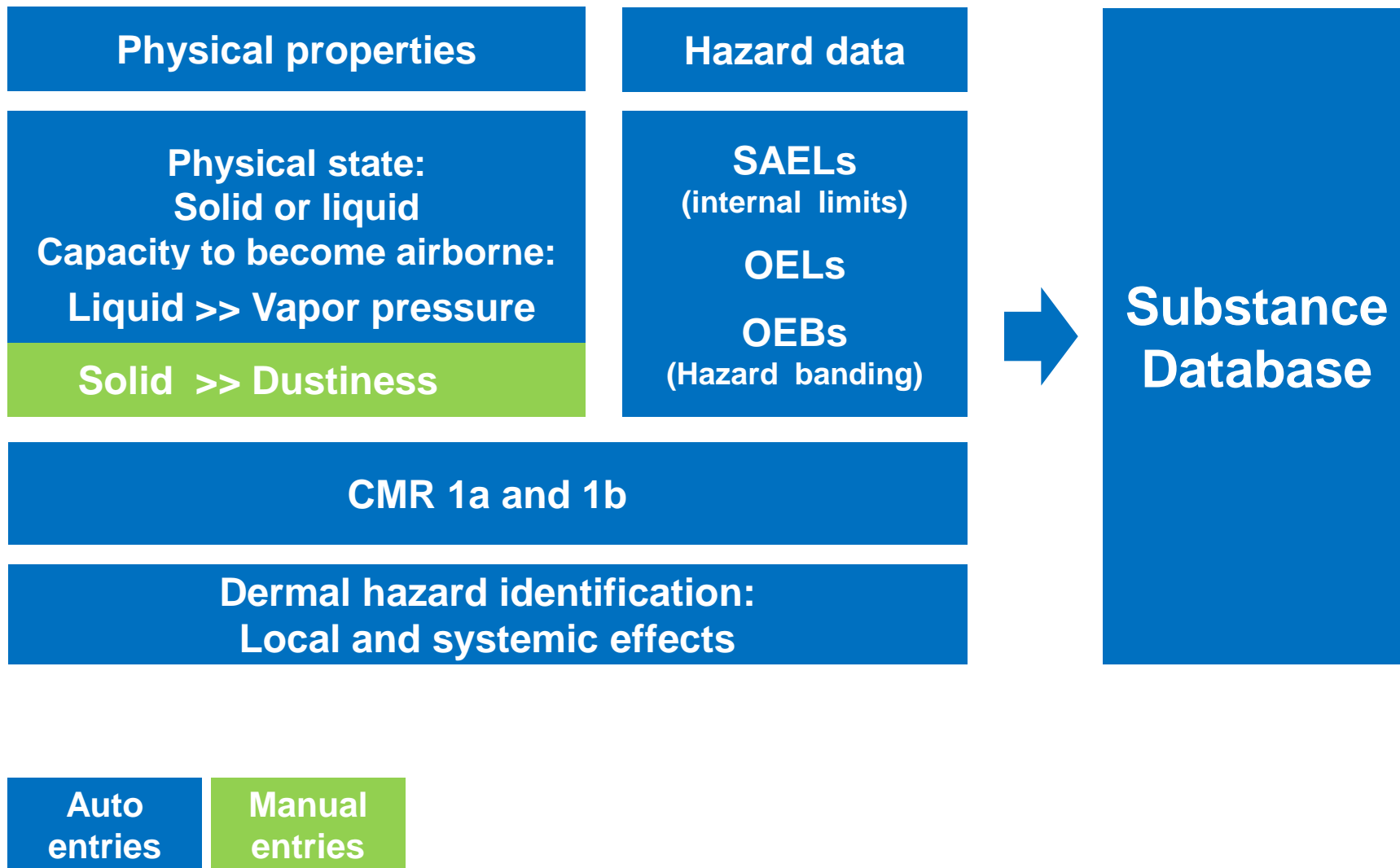
CMR 1a and 1b

Dermal hazard identification:
Local and systemic effects

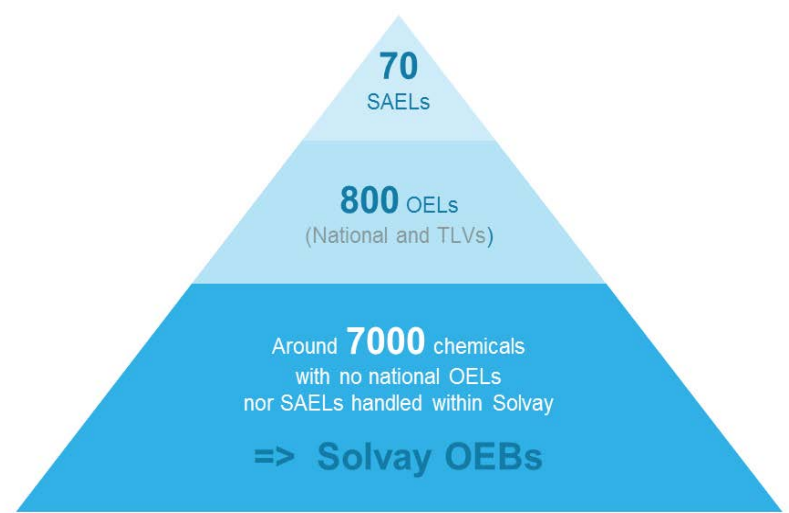
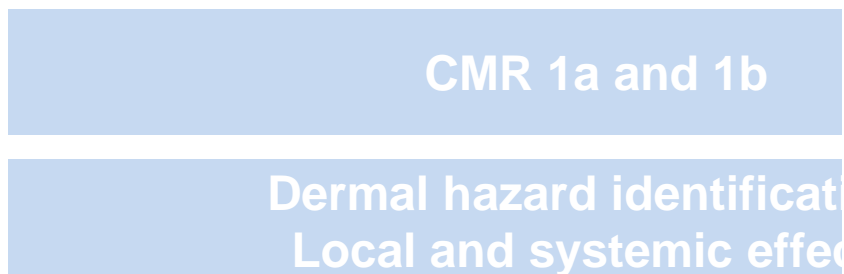
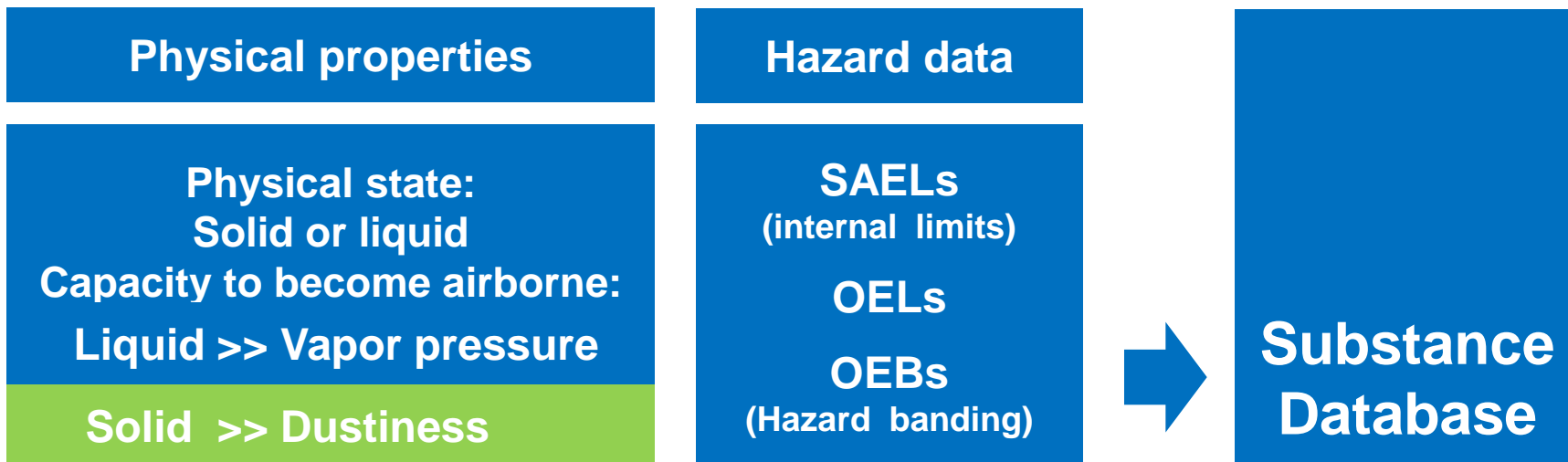
Auto
entries

Manual
entries

Hazard identification



Hazard identification



Exposure potential

Task description

Task list selection
Liquids & Solids

Concentration and Task duration

**Auto
entries**

**Manual
entries**

Exposure potential

Task description

Task list selection Liquids & Solids

Concentration and Task duration



Tasks GROUP

- Material handling
- Sampling
- Cleaning
- Maintenance
- Packaging
- Laboratory
- Production
- Other activities

Auto
entries

Manual
entries

Exposure potential

Task description

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Liquids & Solids

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Tasks GROUP

- Material handling
- **Sampling**
- Cleaning
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- Packaging
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- Other activities

Example: Sampling



SOLID

- Manual sampling, scooping

LIQUID

- Enclosed sampling device: screwed bottle, syringe
- Ventilated sampling point
- Open sampling point (simple valve)
- Manual sampling on top of an IBC, tanker, vessel

Auto
entries

Manual
entries

Risk screening: CTES score

SCREENING score
(Inhalation exposure)



Priority 2

Priority 1

CMR status

Dermal warning

Risk screening: CTES score

SCREENING score
(Inhalation exposure)



- Quantitative exposure estimate for every tasks
- Exposure range
- Comparison with OELs
- Algorithm: ART 1.5 with pre-assigned parameters for tasks



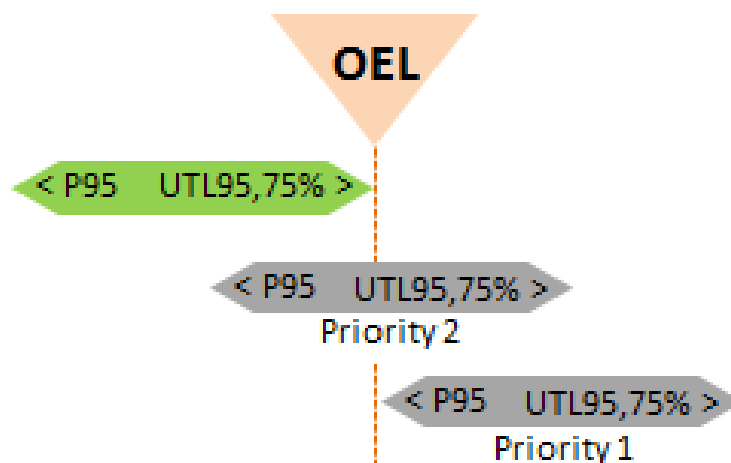
Priority 2

Priority 1






CMR status

Dermal warning

P95 Percentile 95th
UTL95,75% Upper limit of the 75% tolerance interval of the 95th percentile



CTES tool

- Tier 1 screening tool for chemical risk assessment
- Simple to use (few entries) with tasks selection
- Hidden powerful tier 2 tool (ART 1.5) with conservative rules
- 3 outputs:
 - Exposure by inhalation with 3 scores   
 - Highlight the CMR substances
 - Warning for dermal risk (local and systemic effects)
- Priorities setting for potential further detailed analysis
- After 1 year over 40 sites: 75% of  ...
- Free demo available... 

Thank you !