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TATTOO

# Optimise Consumer Safety on AI Stages of the Tattooing Process

## 2nd International Conference on Tattoo Safety
## Berlin, November 2021

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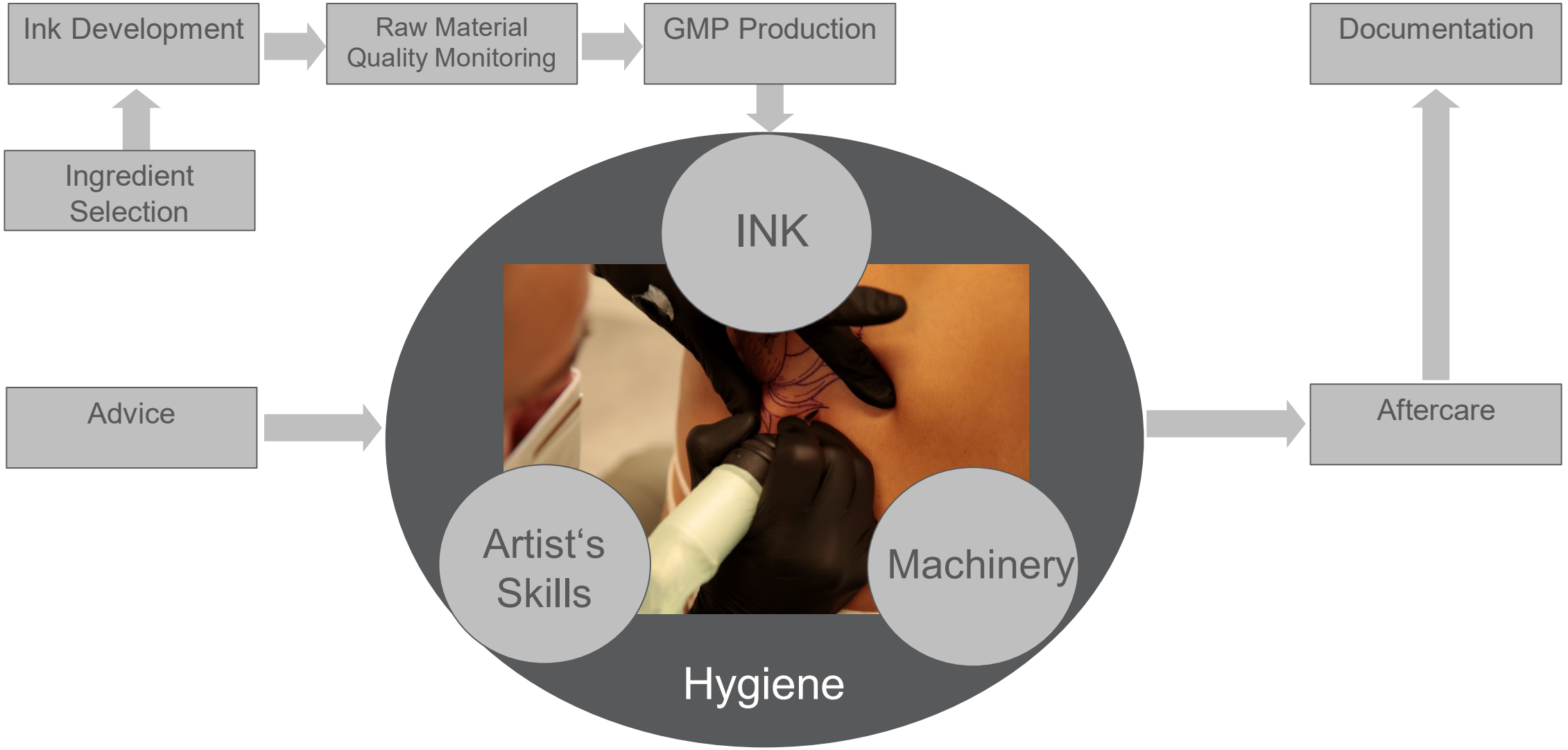
“We care so that you dare to be who you are”

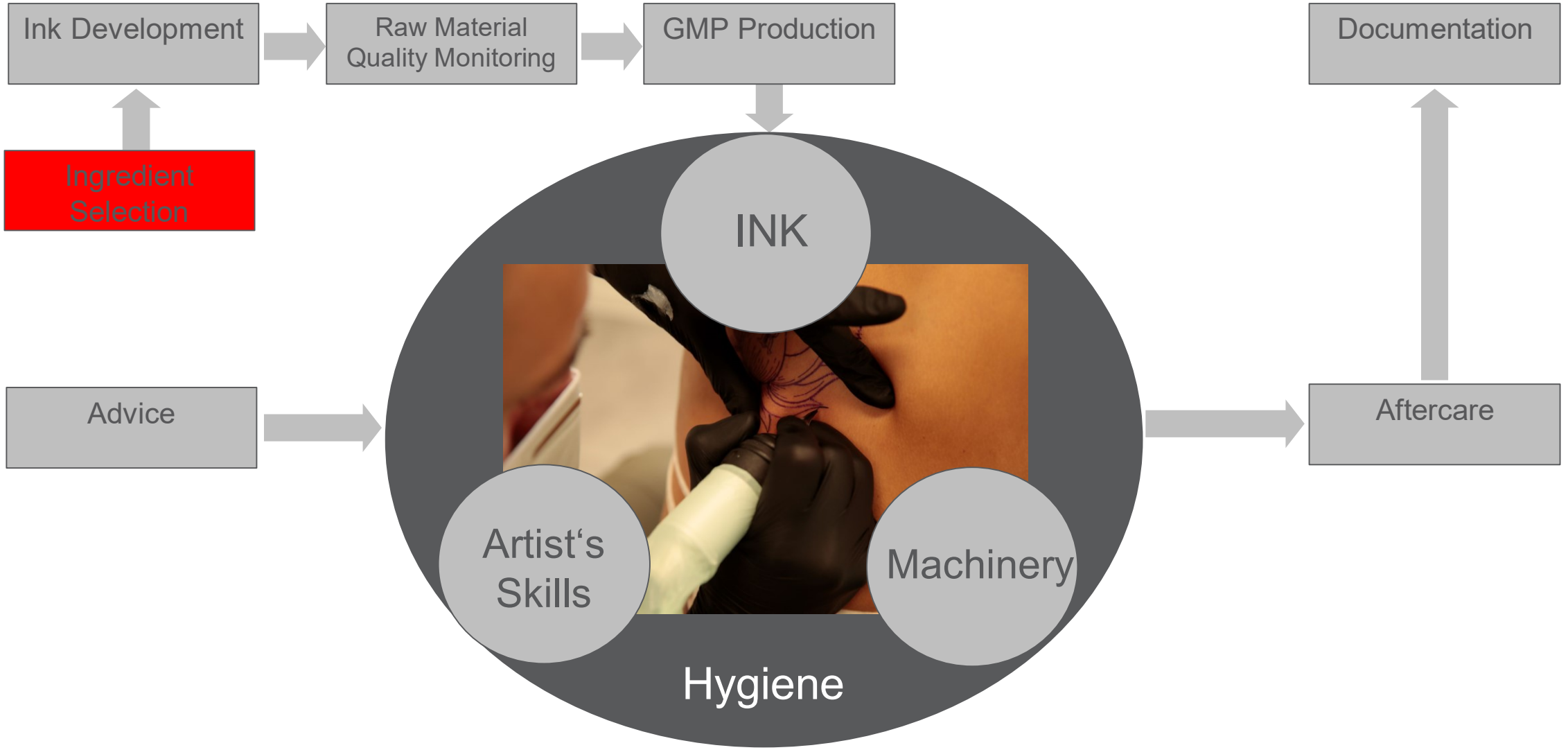
„Power of Expression with inks –

So why don‘t we do Tattoo inks?“

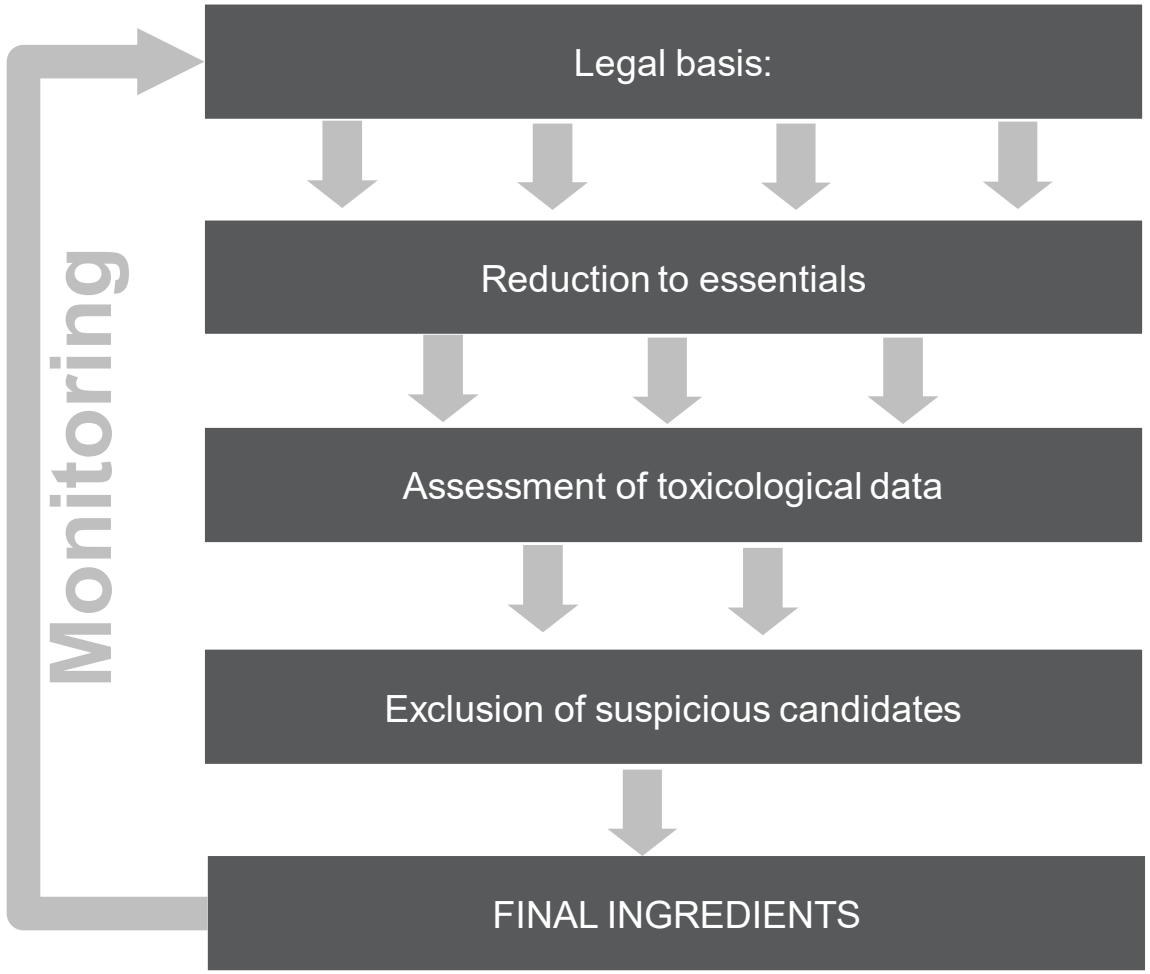
# Tattoo process safety depends on many aspects



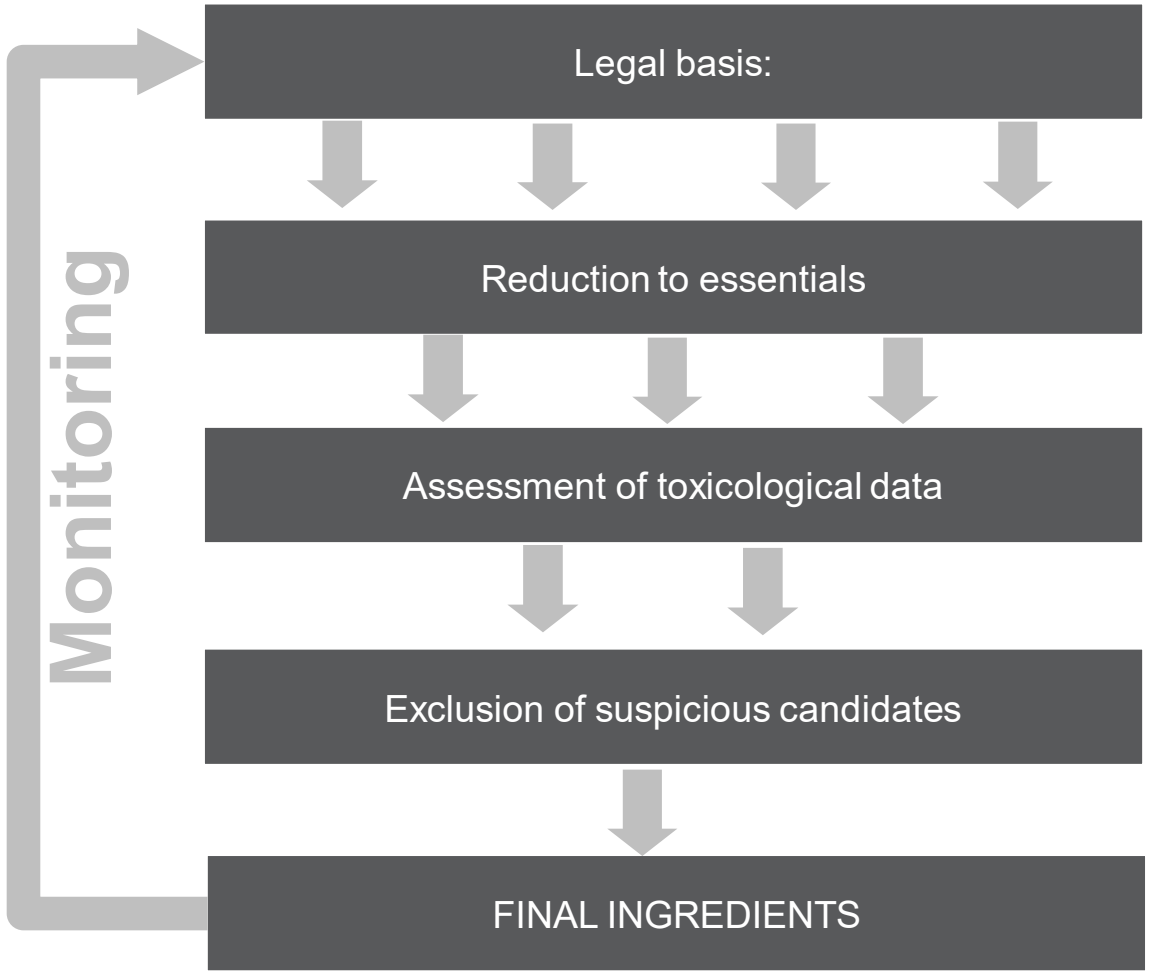
# In this presentation we focus on an early step: Ingredient selection



# Tattoo Ink ingredients are selected following a defined process



# The basis for the selection is the legally permitted substance portfolio




Appendix XVII No. 75 in (EG) 1907/2006 REACH
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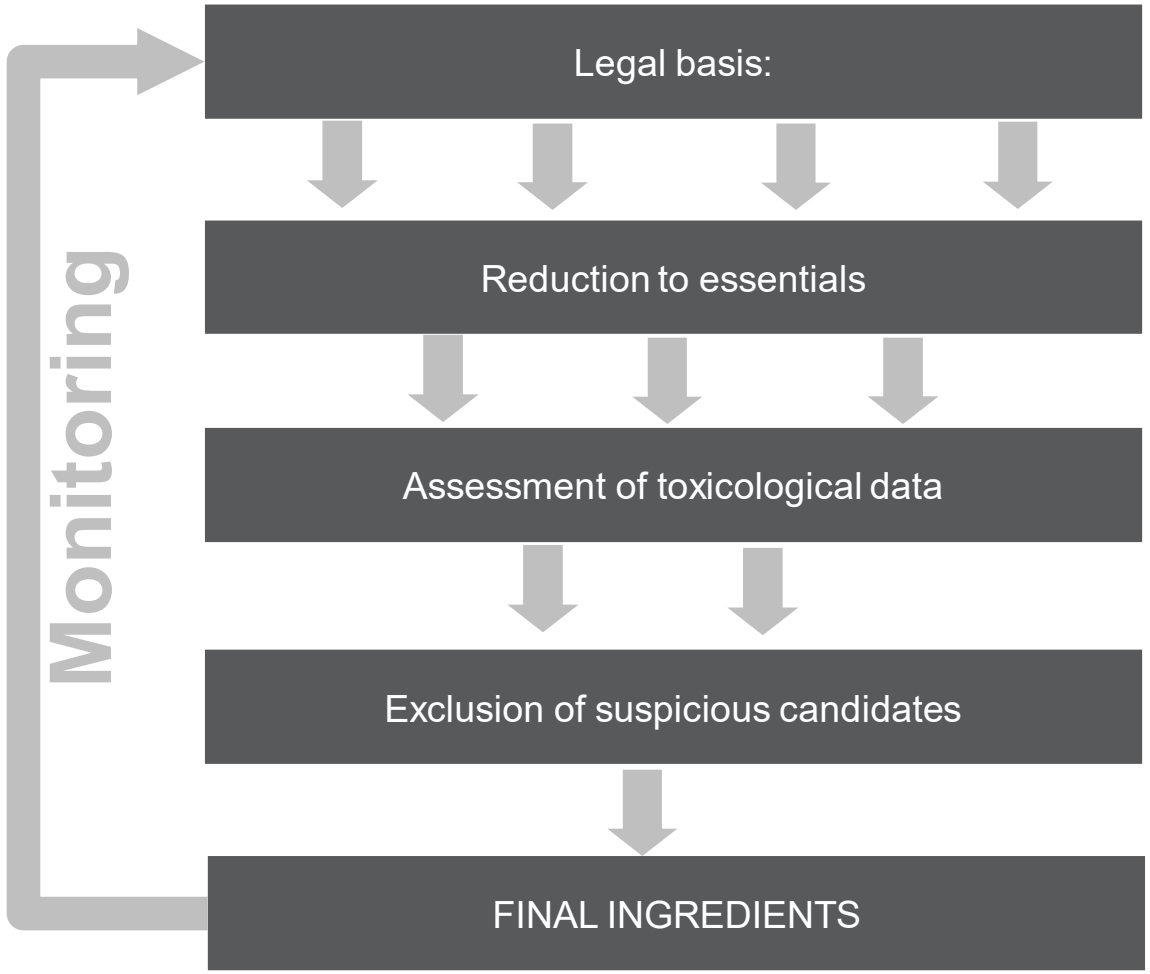
# The number of ingredients is reduced to essentials

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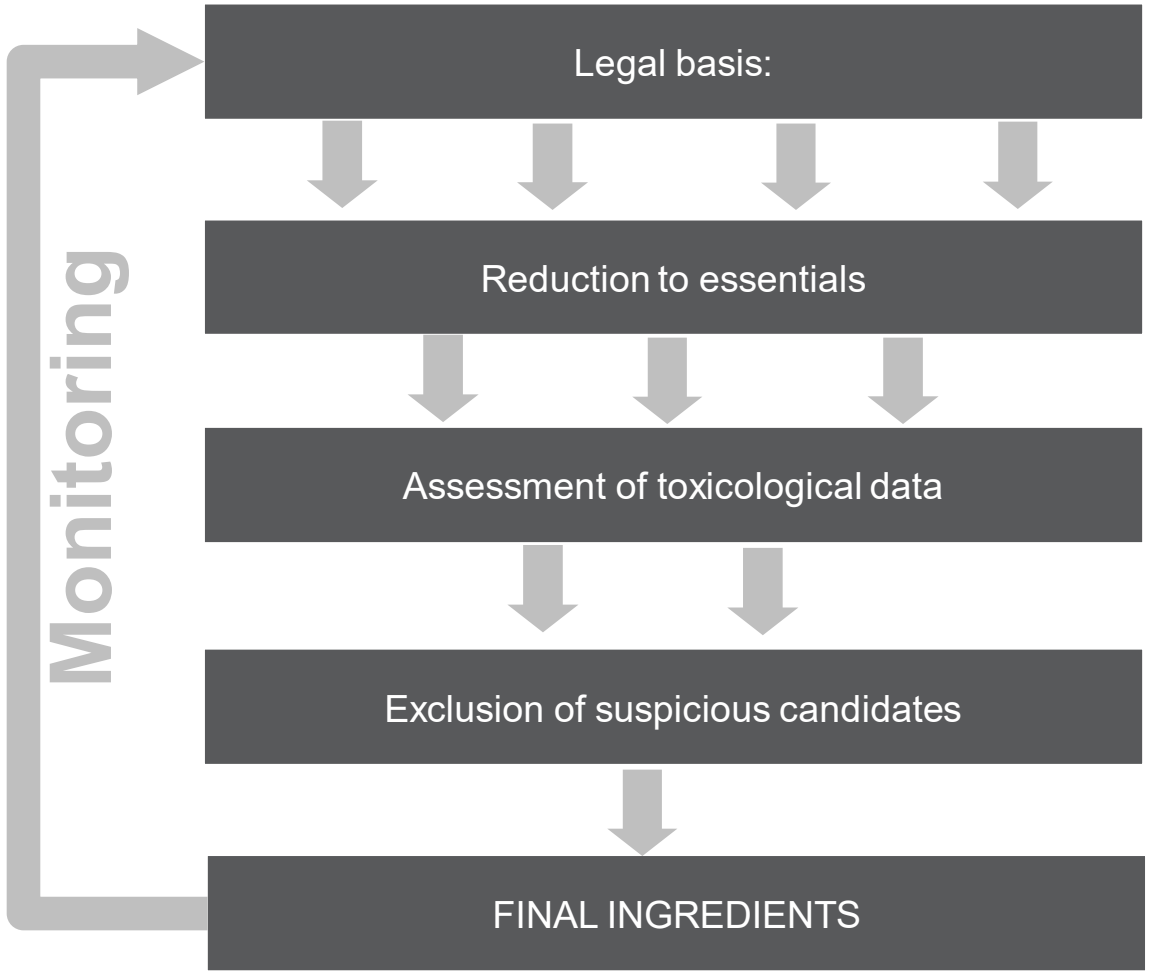
Technical solutions prior to chemical (e.g. no biocides by using monodose, no de-foamer by adapting dispersion process)

# All substances were assessed regarding availability, quality, and risk indication of toxicological data

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Assessment of toxicological data from ECHA data base according BfR/JRC recommendation ➔ diminish the risk

# BfR/JRC recommended a set of toxicological criteria to assess potential hazards of Tattoo Ink ingredients:

**Tabelle 1: Toxikologische Testmethoden, anwendbar für die Sicherheitsbewertung von Tätowiermittel-Inhaltsstoffen**

| Toxikologischer Endpunkt | Methode | Resultat | Auswertung |
|---|---|---|---|
| | | | |
| Hautirritation[1] | Intrakutaner Reaktivitätstest (ISO/FDIS 2009) | negativ | + |
| | | positiv | - |
| | Daten aus anderen validierten Methoden[7] | negativ | o |
| | | positiv | - |
| Schleimhautirritation | OECD 405: akute Augenirritation/-verätzung | negativ | + |
| | | positiv | - |
| | Daten aus anderen validierten Methoden[7] | negativ | o |
| | | positiv | - |
| Phototoxizität[2] | OECD 432: In vitro 3T3 NRU Phototoxizitäts-Test | negativ | + |
| | | positiv | - |
| Sensibilisierung | OECD 406: Meerschweinchen Maximisierungs-Test (GPMT) | negativ | + |
| | | positiv | - |
| | Daten aus anderen validierten Methoden[7] | negativ | o |
| | | positiv | - |
| Mutagenizität/Genotoxizität[3] | Test-Gruppe: OECD 471, OECD 476, OECD 478 | negativ | + |
| | | positiv | - |
| Kanzerogenität[4] | OECD 451, OECD 453 | negativ | + |
| | | positiv | - |
| | Daten aus anderen validierten Methoden[7] | negativ | o |
| | | positiv | - |
| Reproduktionstoxizität | OECD 414, OECD 416 | negativ | + |
| | | positiv | - |
| | Daten aus anderen validierten Methoden[7] | negativ | o |
| | | positiv | - |
| | | | |
| Akute Toxizität[5] | OECD 420, OECD 423, OECD 425 | LC50 | |
| | | | |
| Wiederholte Dosis-Toxizität[6] | OECD 407 | | |
| | | | |
| | OECD 408, OECD 409 | NOAEL | |

**Two questions have to be answered:**

- Are there data available and of what quality the data are compared to the recommendation?
- Does the substance in question imply any risk for application in tattoo ink?

# ECHA offers a huge data base for toxicological data – but the data quality has to be assessed

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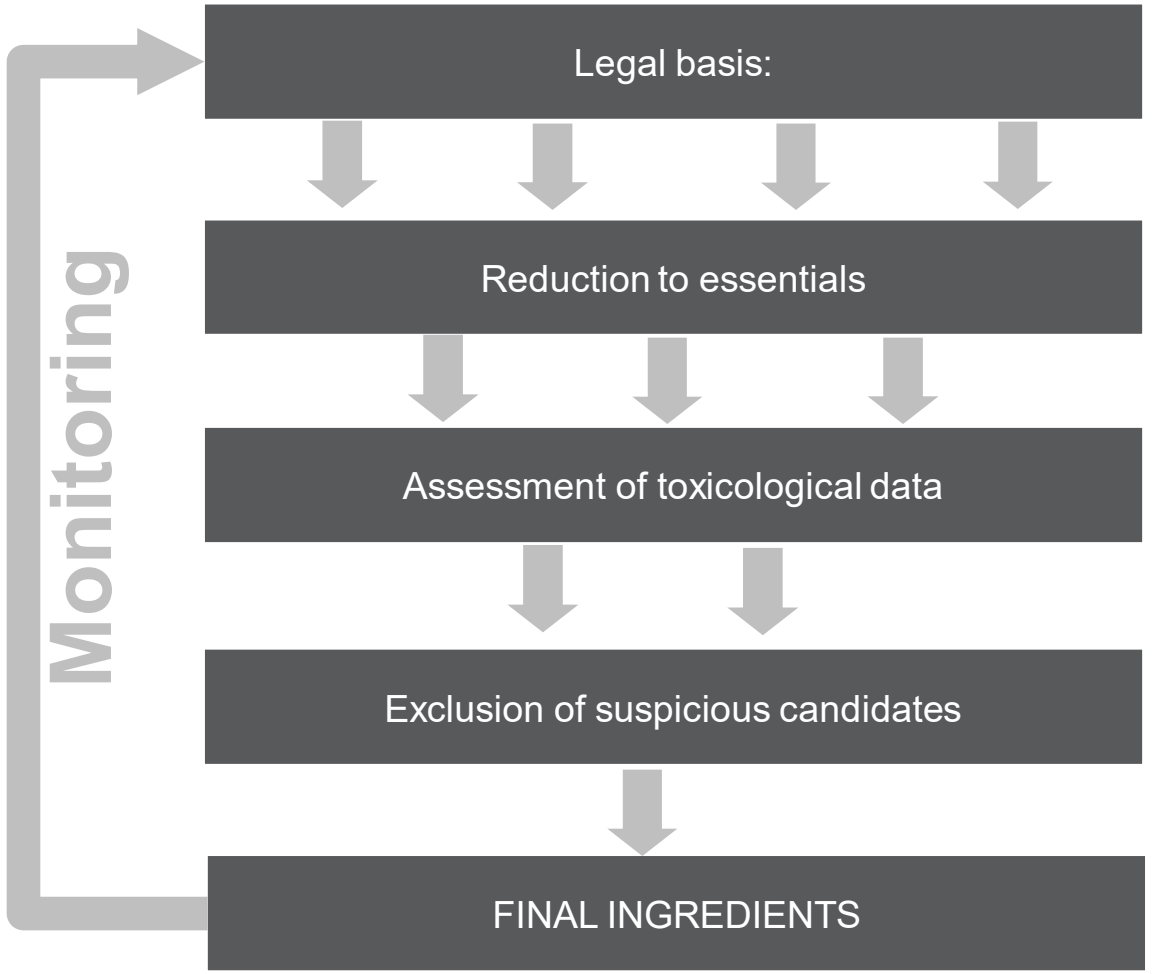
| | OECD 408, OECD 409 | NOAEL | |

| | Method according to BfR/JRC-recommendation | Method not according to BfR/JRC-recommendation |
|---|---|---|
| Substance in question evaluated | 1 | 2 |
| Read-across only: chemically similar substance evaluated | 3 | 4 |
| No data | 5 | |

# The evaluation of e.g >70 pigments allows to get an overview of data availability and quality

| Tattoo Ink Ingredients Assessment | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pigment | Type | Signal Word | Hazard Indication | acute oral toxicity | acute dermal toxicity | skin irritation | eye irritation | sensitizing skin | subchronical toxicity | genetic toxicity | toxic to reproduction | carcinogenity | photo toxicity | |
| BfR/JRC Recommendation | | no | no | | | intra-kutan reactivity test | OECD 405 | OECD 406, GPMT | OECD 407, 408, 409, NOAEL | OECD 471+473, 476,487 oder 474 | OECD 414, 416 | OECD 451, 453 | OECD432 | |
| CI 77891 Pigment White 6 | inorganic | no | no | 1 | 5 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 5 | 1,9 |
| CI 561050 Pigment Red 255 | pyrrole dione | no | no | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 5 | 5 | 2 |
| CI 56117 0 Pigment Orange 73 | pyrrole ketone | no | no | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 5 | 5 | 2 |
| CI 74160 Pigment Blue 15:3 siehe Annex II JRC-Report | phthalocyanine, Cu | no | no | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 5 | 5 | 2 |
| CI 11680 Pigment Yellow 1 | single azo | no | no | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 5 | 5 | 2,1 |
| CI 561300 Pigment Red 264 | pyrrole dione | no | no | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 2,3 |
| CI 56300 Pigment Yellow 138 | quinolon, halogene | no | no | 1 | 1 | 2 | 1 | 4 | 2 | 1 | 2 | 5 | 5 | 2,4 |
| CI 200310 Pigment Yellow 155 | double azo | no | no | 1 | 5 | 2 | 1 | 1 | 2 | 1 | 2 | 5 | 5 | 2,5 |
| CI 21108 Pigment Yellow 83 | double azo, halogene | no | no | 1 | 3 | 2 | 2 | 2 | 2 | 3 | 4 | 1 | 5 | 2,5 |
| CI 56290 Pigment Yellow 185 ? | isoindoline | no | no | 1 | 3 | 2 | 2 | 1 | 1 | 1 | 4 | 5 | 5 | 2,5 |
| CI 12477 Pigment Red 210 | single azo | no | no | 1 | 3 | 2 | 2 | 4 | 4 | 3 | 4 | 5 | 5 | 3,3 |
| CI 77120 Bariumsulfat | inorganic | no | no | 1 | 5 | 4 | 1 | 4 | 4 | 3 | 5 | 4 | 5 | 3,6 |
| CI 77492 Pigment Yellow 42 | inorganic | no | no | 4 | 5 | 4 | 4 | 4 | 5 | 1 | 5 | 4 | 5 | 4,1 |
| CI 11765 Pigment Yellow 49 | single azo, halogene | no data | no data | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| CI 11770 Pigment Yellow 75 | single azo, halogene | no data | no data | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

# Beyond the verified toxicological data suspicious candidates were cancelled additionally

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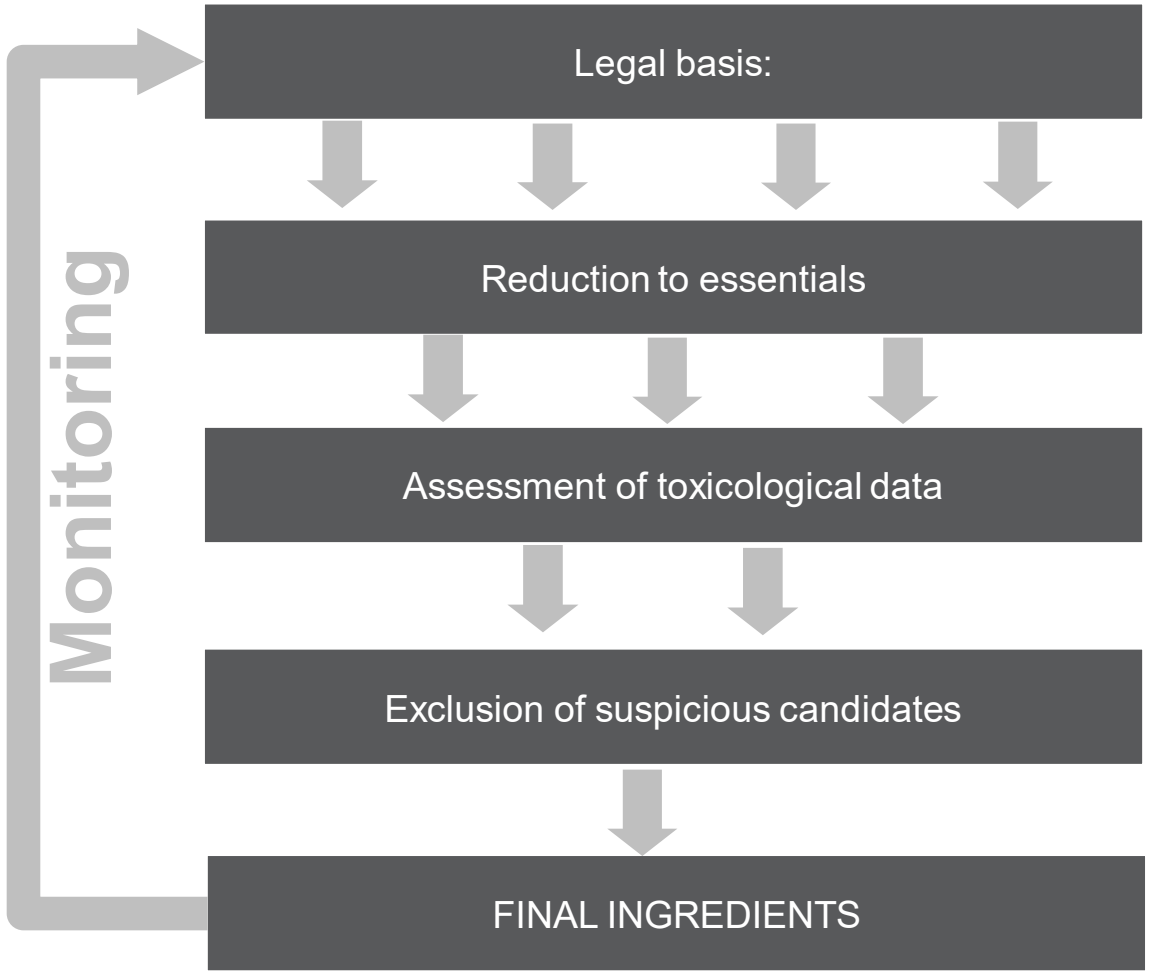
Assessment of toxicological data from ECHA data base according BfR/JRC recommendation ➔ diminish the risk

Exclusion of suspicious candidates: Substances under discussion w/ certain risk potential (e.g.: PEG)

# The result is a simple formula – being reassessed perpetually

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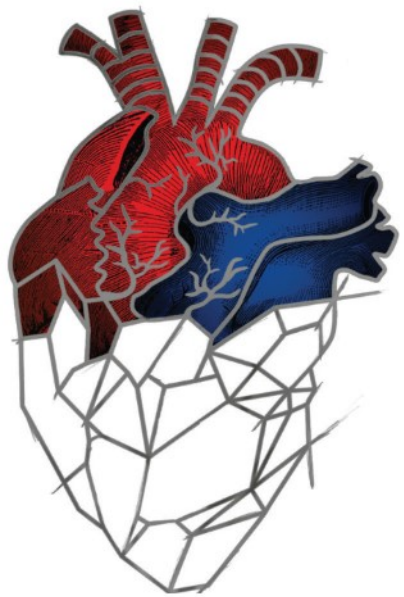
pigment + water + dispersing agent + Glycerine + Monopropylenglycol

## Conclusions:

- Safety in tattooing is determined by the complete process from advice to aftercare
- Ink is a crucial factor
- The selection of the ink ingredients is the starting point of safety improvement
- Appropriate and transparent selection process shall be outlined



THINK. INK. LOVE.