

# safety briefing for hazardous materials

**Dr. Gillian Kiliani**  
on behalf of the nano.lab



# general aspects of safety

## renewal of this briefing

- mandatory every 12 months
- on the user's own account

## gases

- no introduction of gases or gas bottles
- modification of the existing gas lines or gas hookups is strictly prohibited



# legal obligations

## mandatory to have a hazmat registry

- keep track of all hazardous materials in a lab
- database system DaMaRIS

## login credentials for reading access

- displayed in P831
- visit <https://www.physik.uni-konstanz.de/en/nano/>
  - > organization > regulations
  - > DaMaRIS credentials (after signing in)

KG11116	SU-8 2000 thinner : SU-8 2000 series resists (2:1)		226 302+332 315 317 319 411	20 ml GSS rechts	Bechinger
KG11117	SU-8 2000 thinner : SU-8 2000 series resists (3:1)		226 302+332 315 317 319 411	20 ml GSS rechts	Bechinger
KG10661	SU-8 2000 thinner		226 302+332 315 319	1000 ml GSS rechts	Bechinger
KG9716	mr-Dev 600 developer		226 360D	2000 ml GSS rechts	Chemie
KG9660	ma-D 500 developer series (except ma-D 533 & ma-D 533 S)		302 315 319 373	1000 ml GSS rechts	Chemie
KG9735	MIBK : IPA (1:3)		225 319 332 335 336	350 ml GSS rechts	Chemie
KG9685	SU-8 3000 series negative resists		226 302 315 317 319 332 341 411	1500 ml GSS rechts	Chemie
KG14392	Technistrip MLO-07		315 318	1000 ml GSS rechts	Chemie
KG9660	ma-D 500 developer series (except ma-D 533 & ma-D 533 S)		302 315 319 373	300 ml GSS rechts	Di Bernardo
KG9658	ma-N 2400 negative photoresist series		226 315 319	500 ml GSS rechts	Di Bernardo
KG13519	mr-Rem 700		314 335 412	500 ml GSS rechts	Di Bernardo
KG14515	ma-D33x and ma-D33x/S		315 319	1000 ml GSS links	Goennenwein
KG9735	MIBK : IPA (1:3)		225 319 332 335 336	200 ml GSS links	Goennenwein
KG9701	AZ MiR 701 photoresist		226 318 335	50 ml GSS links	Goennenwein
KG9658	ma-N 2400 negative photoresist series		226 315 319	50 ml GSS links	Goennenwein
KG14444	ma-P 1200 positive-tone photoresist series		226 302 311 336 360D 361f	250 ml GSS links	Goennenwein
KG13519	mr-Rem 700		314 335 412	1000 ml GSS links	Goennenwein
S606010010	Aceton		225 319 336	1000 ml GSS rechts	Leitenstorfer
KG9716	mr-Dev 600 developer		226 360D	250 ml GSS rechts	Leitenstorfer
KG9660	ma-D 500 developer series (except ma-D 533 & ma-D 533 S)		302 315 319 373	100 ml GSS rechts	Leitenstorfer

# the safety data sheet

## material safety data sheet (MSDS or SDS)

- check BEFORE buying a material
- lists all hazards of a material
- lists safety measures
- linked to every DaMaRIS entry

### SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

AZ 326 MIF Developer

Version: 2.0

Product number: 697332

Revision Date: 29.01.2019

Print Date: 30.01.2019

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H311 Toxic in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H371 May cause damage to organs (Central nervous system).  
H373 May cause damage to organs (Liver, thymus gland) through prolonged or repeated exposure.

Precautionary statements : **Prevention:**  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

# CMR and toxic materials

## CMR materials

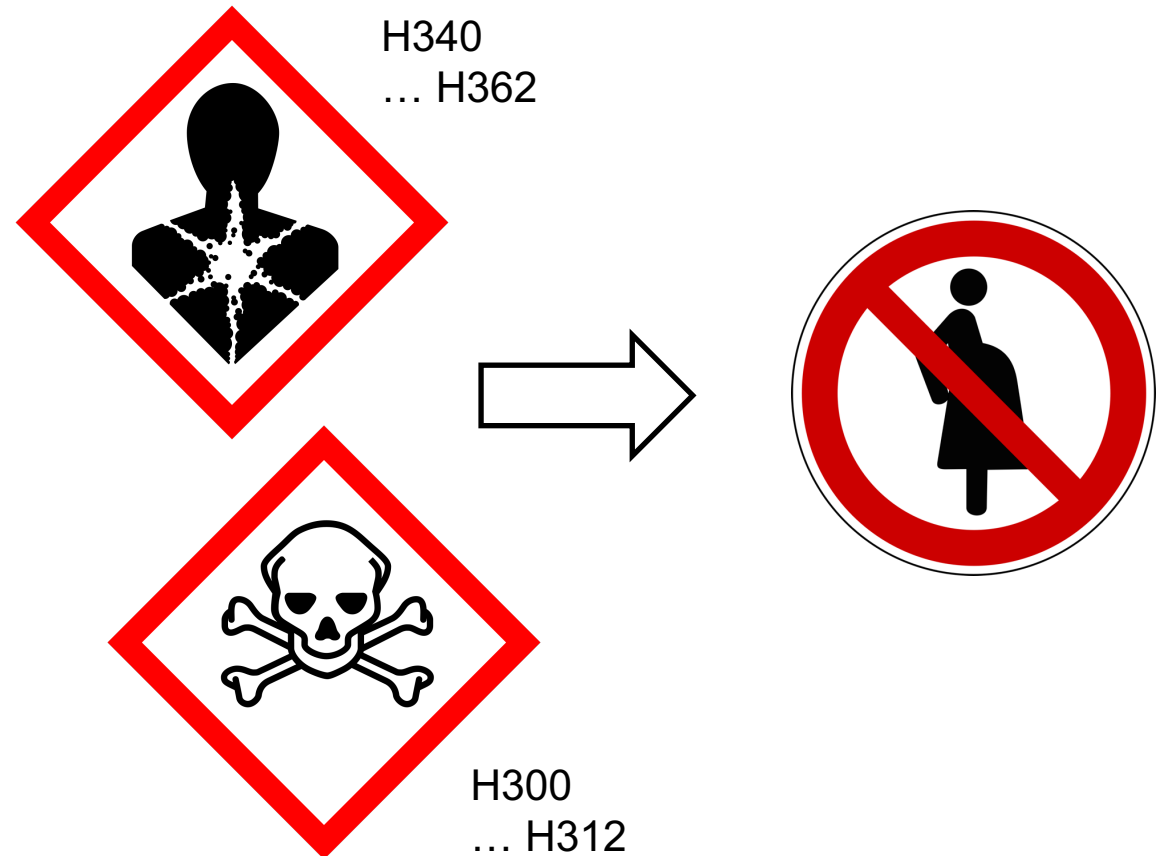
- cancerogenic, mutagenic, or toxic to reproduction
- special treatment with regard to safety

## toxic/poisonous materials

- need to be locked up

## pregnant or breast feeding women

- no access due to extensive use of CMR and toxic materials  
e.g. H361FD: May damage fertility. May damage the unborn child.
- HiWi assistance encouraged



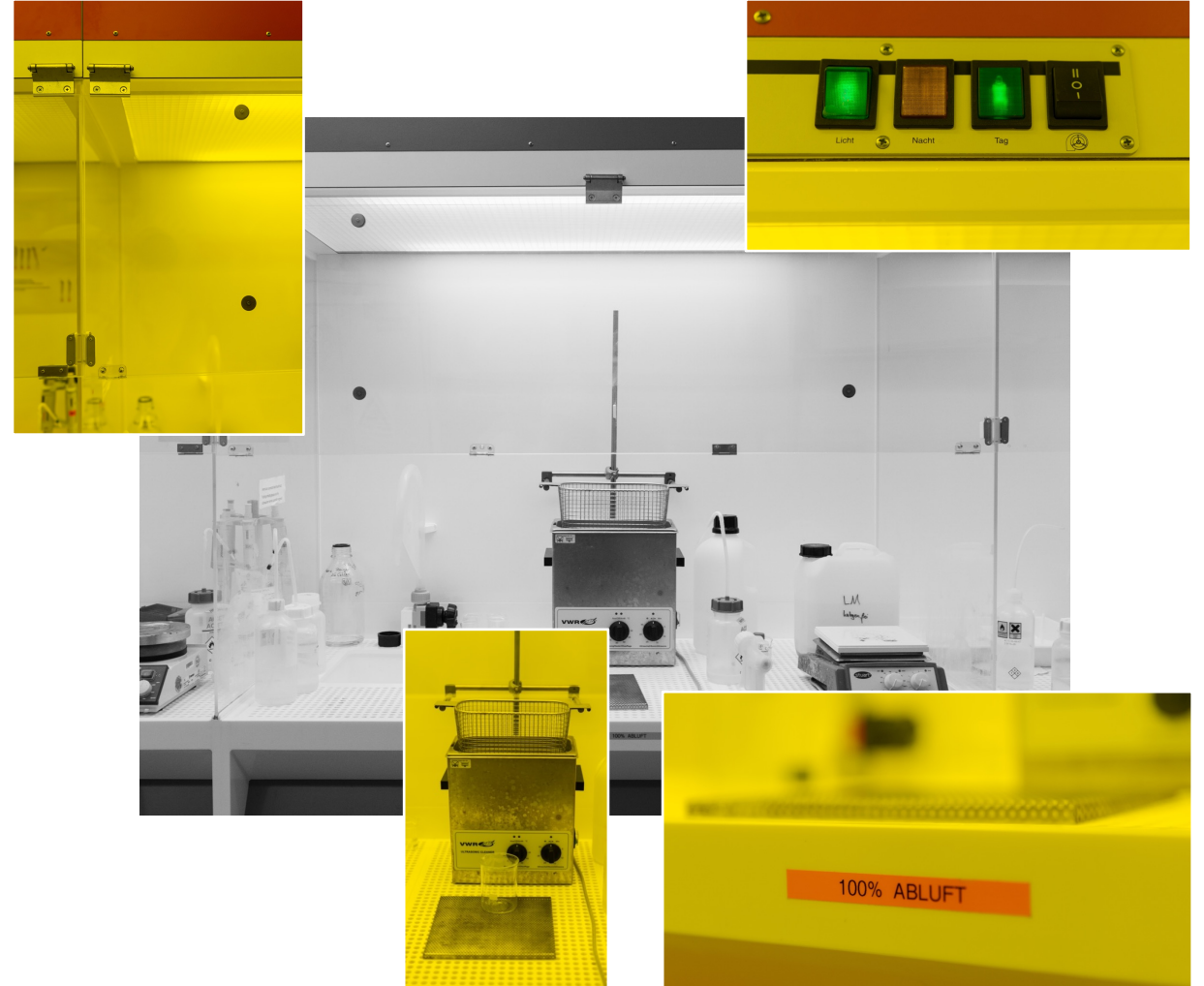
# general aspects of safety

## proper storage containers

- bottle or vials that can be firmly closed
- no beakers
- no syringes
- no medical or food containers

## flowboxes

- flowboxes are not nearly as safe as proper fume hoods
- always operate under 100% ventilation with level II
- always work towards the center of the flowbox
- always deploy first two sectors of lid



# introduction of a hazardous material

## prior online registration is mandatory

- visit <https://www.physik.uni-konstanz.de/en/nano/>  
> organization > registration of a hazardous material

## wait for response

- confirmation if everything is in order
- get label for container

## finally...

- attach label and note name
- put container into proper compartment

### registration of a hazardous material

1. contact information    2. hazardous material

#### CONTACT INFORMATION

last name\*

user according to future DaMaRIS entry

first name\*

user according to future DaMaRIS entry

email\*

enregistering person; for callbacks and confirmation

group\*

group according to future DaMaRIS entry (e.g. AG Goennenwein)

data protection policy\*

yes

no

I hereby declare my consent to the effective data protection policy (see link below). If acting on behalf of others, I declare to have their explicit permission with respect to data protection.

>

# when do I need to register?

## DaMaRIS counts every container

- EVERY new/additional container needs to be registered
- decanting needs to be registered as well
- waste containers also need to be registered

## de-listing

- require de-listing if a container is removed permanently from the storage

## refills

- need not be reported, since container is already registered

**overall number of containers changes?**

yes

- register or de-list

no

- no need to register or de-list



# gloves and goggles

## always wear proper gloves

- see section 8 in every SDS for which gloves to wear
- standard gloves provided by the nano.lab
- 0.11 mm nitrile gloves are almost always insufficient
- full contact is strictly prohibited

## always wear goggles

- encouraged to bring your own goggles

## 8.2 Exposure controls

AZ EBR 70/30

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

### Personal protective equipment

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye protection : Safety glasses

Hand protection :

full contact

Glove material : butyl-rubber

Glove thickness : 0,7 mm

Break through time : 480 min

splash contact

Glove material : Nitrile rubber

Glove thickness : 0,40 mm

Break through time : 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example:KCL 898 Butoject®(full contact);KCL 730 Camatril®

# waste disposal

## hazardous materials

- according to main component
- filter solid contents before disposal

## contaminated wipes and gloves

- in contact with resists, developers, removers, ... > corresponding containers for contaminated waste

## non-contaminated wipes and gloves

- in contact with acetone, isopropanol, ethanol > standard waste bin

contaminated waste



non-contaminated waste



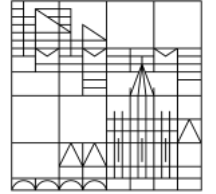
# first aid

## proper measures, if not stated otherwise

- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P301 + P330 + P331 and P310: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call poison center (0-0761 19240), doctor (0-112) and internal emergency line (2222).
- In case of burns or scalds: Immediately remove clothing drenched or tainted with hot substances. Cool afflicted body parts for at least 10 min under cool running water.



internal:	2222
external:	0-112
poison center:	0-0761 19240



# Are there questions?

**Dr. Gillian Kiliani**

safety supervisory assistance · nano.lab

Tel.: +49 (0) 75 31/88 - 2012

[gillian.kiliani@uni-konstanz.de](mailto:gillian.kiliani@uni-konstanz.de)