

# Welcome to VYNOVA Belgium nv

---



# Forword

---

- **Your and our safety are very important**, that is why a chemical company has procedures you need to know. This presentation discusses the most important regulations.
- Also, always request your superior, experienced colleagues or client for **detailed information**. There is no such thing as a silly question!
- **Working safely** demands that you recognise the dangers and safeguard yourself and your colleagues.
- In any case we hope you have a safe and successful stay in our company!



Luc Leunis  
Executive Vice-President  
VYNOVA



# Safety charter

---

**Working safely is a fundamental condition on the site of VYNOVA and INEOS in Tessenderlo,**

- **All accidents can be avoided!** This is possible through a farreaching prevention policy and a **safety culture** that is **respected by EVERYONE**
- You are not only responsible for your own safety and also for the safety of others. Never endanger the others and point out the unsafe situations and unsafe behavior to each other . **Brother's-keepers.**
- Everybody has the duty to prohibit the use of unsafe equipment, tools and/or working methods and to stop unsafe working practice.
- As client VYNOVA and INEOS has **the right to stop the work** if it is not safe.
- **Report immediately incidents/near-accidents/misses** to your team leader and VYNOVA. **Always get treatment for injuries.**



# Safety principles



**Always respect these 10 behavioural safety principles applied at VYNOVA and INEOS**

## Behavioural Safety: 10 Principles

1. Every incident and every injury can be **prevented.**
2. Working safely is everyone's first **responsibility.**
3. Work safely: **stop immediately unsafe working practices.**
4. Rules and procedures have to be respected by everyone. **Comply these thoroughly.**
5. **Always follow the rules and procedures.**
6. **Ensure each other's safety.** Watch out for unsafe situations.
7. **Report** all injuries and incidents/near misses. Investigation on this is important.
8. **Risk assessments** must be carried out, before, during and on completion of work.
9. All team leaders have a special responsibility for promoting and upholding these safety principles.
10. Always work within the limit of our **competency and training**



## Life Saving Rules

- Always respect the 7 Life Saving Rules (LSR)!
- The LSR are focussed on diminishing the number of serious incidents and accidents!
- Report and investigate abnormality/violation of LSR .

# LIFE SAVING RULES



1. Consumption or being under the influence of alcohol or drugs is prohibited on company property



2. Smoking is not allowed outside dedicated smoking areas



3. Do not start working on live equipment/machines producing energy or product without authorisation



4. Safety critical devices/interlocks must not be disabled or overridden without authorisation



5. Protect yourself and use proper fall protection if working at heights



6. Do not enter confined space without authorisation and gas test



7. Lifting & hoisting – no unauthorised person to enter the defined danger zone where objects can fall

# ACCESS AND TRAFFIC



# Access

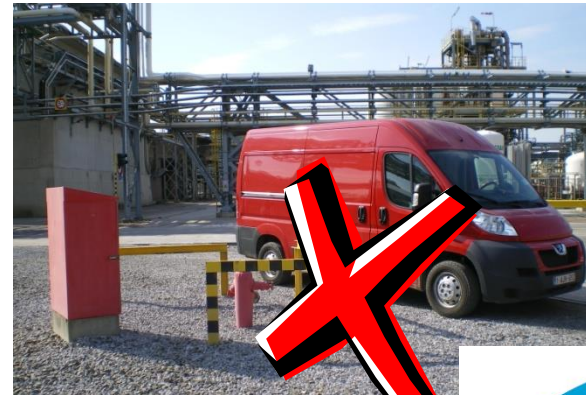
---

- Carry your **PERSONAL badge** always on you.
- **Enter INDIVIDUALLY.**
- Your registration is used to collect lists in emergency situations.
- Children under 15 years old and pets are prohibited on the site



# Traffic

- Only vehicles with a specific permission will be allowed access to the site.
- **The Belgian highway code will be applied.**
- Max. **30 km per hour** and it requires wearing the seat belt
- Pay attention to cyclists, pedestrians and industrial vehicles such as forklift, bulldozer or cherry picker.
- Do park **at the indicated parking places.**
- Do not park in front of fire hydrants, under pipe bridges and near a railway track.





# Barriers

- EX zones have barriers.
- Do NOT open them yourself .
- Fire watch must be called.



# Cyclists

---

- Cycling is strictly limited on the site,
- Cycling by third parties is only permitted after approval.
  
- Cyclist must have been qualified and identifiable by a green sticker.
  
- The bicycle has to be in order and checked, identifiable by a yellow sticker.
  
- As a cyclist you always check the condition of your bike before use. **Never use a defective bike**



# Walk in Safety

---

## Many accidents at chemical factories happen while walking.

- Risks for falling and stumbling are always present at chemical sites: stairs, edges of tanks, hoses and electric cables on the floor.
- Always be careful while walking and taking the stairs.
- Keep your eyes on the road and route. Watch out for low hanging pipes, and protruding parts of the equipment.
- Always hold the banister of the stairs,
- Do not run or jump.
- Don't let you distract by colleagues or others.
- Don't combine tasks during walking. Do not phone, do not fill in papers, .....



# Access and exit control

---

- Access and exit control searches can take place randomly and prevents theft of goods in the enterprise or workplace.
- All entrances and exits have camera surveillance.



# PERMITS



# Start of the activities

---

- Only with a **valid workpermit/notification permit** and a **completed LMRA**, you may start the job.
- Every permit and LMRA has to be **at the working place**.
- The conditions of the permit **must be followed**.
- Stop working in case the circumstances suddenly change (leak of product, the weather, other tools)
- Always verify if you are working on **the right device**.
- In case of **alarm all the permits expire** automatically.
- The executors must have the required qualifications. E.g. hydraulic lift, forklift, use of fall protection, working on scaffolding, ..... Certificates have to be shown if asked so.





# Measures to be taken by you

**MAATREGELEN TE NEMEN DOOR  
UITVOERDER**

**NOODNUMMER: 5555**

Het werk dient te worden gestaakt of mag niet worden begonnen bij:

1. Alarm
2. Een wijziging van de werkomstandigheden
3. Op aanwijzing brand-veiligheidswacht of medewerker TC

**Verzamelplaats: MVC eetzaal werkplaats**

Te nemen voorzorgsmaatregelen:

- stelling
- gebruik hoogwerker
- beveiligen tegen valgevaar :
- persoonlijke LEL-meter
- brandblusser: ABC poederblusser
- brandweerwagen standby
- werkplek en/of werkstuk nathouden met water
- werken met vonkvrij materiaal
- plaatsen aarding
- putten/goten/riolen afdekken binnen meter
- vonkafscherming plaatsen
- omgeving afspannen/isoleren
- werkzone en lager gelegen gebieden afbakenen
- signalisatie:
- hangslot plaatsen: nr.
- start/stop test uitvoeren
- controle spanning
- ventilatie
- persoonlijke gasdetectie type:
- communicatiemiddel voorzien:
- verlichting:
- melden onderbrekingen en hervatting werk
- inspectie na de werken
- brandbaar materiaal verwijderen
- kraan

Persoonlijke beschermingsmiddelen:

- gezichtsbescherming:
- gehoorbescherming:
- valbescherming:
- hand-/armbescherming:
- isoleemateriaal/-bank
- beschermende kledij:
- beschermend schoeisel:
- vluchtmasker
- adembescherming:

- **Measures** to be taken by **YOU**, on top of the **standaard measures**, are indicated on the permit.

- **YOU sign the permit** at the back, by way of acceptance of the regulations.

**Uitvoerder**

**Aanvang werkzaamheden**

*Kennisname van en akkoord met opgelegde eisen en draagt zorg voor uitvoering volgens de vergunningvoorwaarden:*

**Uitvoerder:**

**Naam:** Jef Franssen  
**Datum:** 24/03/2013

**Handtekening:** 

**Uitvoerder na overdracht werk aan collega:**

**Naam:**  
**Datum:**





# Hot work permit

- Hot work permit gives permission to hot work in areas with increased fire and explosion danger.
- Follow up the specific measures.
- Depending on the type of work, a fire watch will be present.

RBH-7417
WVG-119603 / 1

### Heetwerk vergunning Hoog Risico

AANVRAAG WERKZAAMHEDEN	MAATREGELEN VERSTREKENDE AFDELING
Eenheid: MVC / PROD OFF-S MVC Afdeling: MOG Functieaans nr.: HSB64A Uitvoerende afdeling: TU-TBDC Zone: Zone A Werkonderstaak nr.:	Mogelijke blootstelling aan: Product 1: stoom, stoomcondensaat Product 2: aardgas CH4 (R) Product 3: Product 4: Invloed van naburige werkzaamheden: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Omschrijving van de werkzaamheden: Meting: Project PRLV0002 Montage nieuwe economiser in het rookgaskanaal van Meura A (HSB64A)	Bijkomende/interfererende vergunningen: Besloten risico vergunning: <input type="checkbox"/> Graververgunning <input type="checkbox"/> M d. Te nemen maatregelen: <input type="checkbox"/> insnoeken <input type="checkbox"/> leasen van abutlers <input type="checkbox"/> afhoppelen <input type="checkbox"/> pannem-/steetscherm (tag/lijst nr.: <input type="checkbox"/> voorzetten vogen insnoekhoes <input type="checkbox"/> drukloos maken <input type="checkbox"/> slijpen/afzagenproductief maken <input type="checkbox"/> oplossen met <input type="checkbox"/> uitstromen <input type="checkbox"/> uitlaten <input type="checkbox"/> hoge druk reinigen <input type="checkbox"/> spoel, mechanisch bakken (lijst nr.: <input type="checkbox"/> spoel, elektrolytisch baden (lijst nr.: <input type="checkbox"/> overbrugging van .... (lijst nr.: <input type="checkbox"/> hangslot plaatsen op: <input type="checkbox"/> m <input type="checkbox"/> waterdicht klaar voor gebruik <input type="checkbox"/> afmoneren afdeling <input type="checkbox"/> informeren interne brandweer <input type="checkbox"/> controle werkloos voor aanvang werken
Deze vergunning mag pas uitgevoerd worden na: dient te zijn uitgevoerd voor: niet tegelijk uitgevoerd met: Toepassing werkzaamheden: <input type="checkbox"/> Koude werk <input type="checkbox"/> Openen industriële gasapparaten/producten <input type="checkbox"/> Heet werk klasse K1 branden/lazen/slijpen of open vlam <input type="checkbox"/> Heet werk klasse K2 pneumatisch pikeren en gebruik van niet EX- of neobestrijding, gebruik van niet EX handgereedschap op batterijen <input type="checkbox"/> Heet werk klasse K3 gebruik van niet EX motoren (op kraan of bestelwagen) <input type="checkbox"/> Warm werk klasse K4 vorkend handgereedschap, meetbestellen op batterijen <input type="checkbox"/> Elektrisch werk werken aan hoogspanning en laag spannings installaties onder spanning (niet zekeringen trekken) <input type="checkbox"/> Geen maatregelen door productie nodig <input checked="" type="checkbox"/> Branden/lazen/slijpen op vlam <input type="checkbox"/> pneumatisch pikeren en rassen <input type="checkbox"/> werken onder spanning <input type="checkbox"/> vacuüm cleaning <input type="checkbox"/> hooppansing <input type="checkbox"/> monteren/onderhouden <input type="checkbox"/> instrumentatietesttechnica <input type="checkbox"/> draagapparaten <input type="checkbox"/> solderen <input type="checkbox"/> grttarsten <input type="checkbox"/> gebruiken gereedschappen en machines: Slijp- en lasapparatuur	Speciale en operationele instructies: <input type="checkbox"/> zwaar overbrugging trekken/leasen tijdens uitvoering <input type="checkbox"/> brandwacht voorzien <input type="checkbox"/> brandwacht: Afmoneren <input type="checkbox"/> uitstromen bij aanraken <input type="checkbox"/> overdragen op werkloos <input type="checkbox"/> verregaande M/C verzaal werkloos Mogelijke risico's: Hoog druk spuiten vacuüm cleaning werken op hoogte veld/ apparatuur tassen Hoogspanning instrumentatietesttechnica draagapparaten solderen gebruiken gereedschappen en machines: Slijp- en lasapparatuur
Werkinstructies t.b.v de werkzaamheden: <input type="checkbox"/> Huisstof (n.o.) <input type="checkbox"/> Explosiebest (n.o. LEL) <input type="checkbox"/> Toxische stoffen (ppm) <input type="checkbox"/> stof <input type="checkbox"/> MAC <input type="checkbox"/> M <input type="checkbox"/> Faraf	Werkinstructies t.b.v de werkzaamheden: <input type="checkbox"/> Huisstof (n.o.) <input type="checkbox"/> Explosiebest (n.o. LEL) <input type="checkbox"/> Toxische stoffen (ppm) <input type="checkbox"/> stof <input type="checkbox"/> MAC <input type="checkbox"/> M <input type="checkbox"/> Faraf







# End of day job

Uitvoerder	
<b>Aanvang werkzaamheden</b>	
<i>Kennisname van en akkoord met opgelegde eisen en draagt zorg voor uitvoering volgens de vergunningvoorwaarden:</i>	
<b>Uitvoerder:</b>	
Naam:	Handtekening:
Datum:	
<b>Uitvoerder na overdracht werk aan collega:</b>	
Naam:	Handtekening:
Datum:	
<b>Einde dagtaak/werkzaamheden</b>	
Duid aan wat productie met werkvergunning moet doen:	
VERLENGEN <input checked="" type="checkbox"/>	AFMELDEN <input checked="" type="checkbox"/>
<b>Controle werkplek door productie en onderhoud</b>	
Gezamenlijk afsluiten terplaatse	<input type="radio"/> JA <input checked="" type="radio"/> NEE
<b>Operator / Verstrekker</b>	
Naam:	Handtekening:

- At the end of the day job you sign off at the department and return all permits.
- **PROLONG:** if you come back the day after
- **SIGN OFF:** job done



# LMRA – Laatste Minute Risico Analysis




- **At the beginning** of every job, **YOU** do a last safety check up, a last minute risk analysis.
- The 11 LMRA questions will help you.
- **You can not start work if you have answered NO to one of the questions.**
- If you cannot do your job safely, find a solution together with your colleagues, your supervisor or an VYNOVA supervisor.

LAATSTE MINUUT RISICO ANALYSE		Antwoorden omcirkelen
Afdeling		7. Beschik ik over het juiste gereedschap, is het in goede staat en gekeurd indien nodig?
Werkomschrijving		
Werkvergunning nummer		8. Indien werkzaamheden van anderen in mijn buurt invloed hebben op mijn taak of andersom: hebben we overleg gepleegd?
Productie taak		
Datum		9. Zijn de (persoonlijke) sloten geplaatst?
	Antwoorden omcirkelen	10. Is je meettoestel vb. LEL, H2S, O2,... aanwezig en gebump?
1. Ken ik de werkzaamheden en heb ik mijn taak begrepen?	ja / nee / nvt	11. Is mijn werkplek goed bereikbaar, voldoende opgeruimd en veilig?
2. In geval van werkvergunning, ken ik de inhoud van de werkvergunning voor het uitvoeren van de job, en houd ik mij hieraan?	ja / nee / nvt	<p>LET OP: Je mag de werkzaamheden pas beginnen nadat je alle vragen met ja of nvt hebt beantwoord. Indien je zelf onvoldoende maatregelen kan nemen om je werk veilig uit te voeren, overleg je best met je collega's en/of de verantwoordelijke leidinggevende.</p> <p>Meld verbetervoorstellen aan je leidinggevende.</p> <p>Bij productlekken of product restanten in je directe omgeving informeer je steeds een verantwoordelijke.</p> <p><b>Bij alarm vervalt de ingevulde LMRA-kaart.</b></p>
3. Weet ik waar de nooduitgang(en), vluchtweg(en), nooddouche(s), brandblusser(s) en verzamelplaatsen zijn?	ja / nee	
4. Heb ik mij ervan overtuigd dat het installatiedeel veilig is gesteld.	ja / nee	
5. Vind ik de afgesproken maatregelen voldoende om veilig te kunnen werken?	ja / nee	
6. Beschik ik over de juiste persoonlijke beschermingsmiddelen en ga ik die dragen?	ja / nee / nvt	




# LMRA card

Naam	Firma Afdeling	Handtekening voor akkoord
1.....	.....	.....
2.....	.....	.....
3.....	.....	.....
4.....	.....	.....
5.....	.....	.....
6.....	.....	.....
7.....	.....	.....
8.....	.....	.....

**LAATSTE MINUUT RISICO ANALYSE  
VEILIGHEID VOOR IEDEREEN,  
DOOR IEDEREEN!**



- **Every** executor participates in LMRA and signs off on the back
- After the alarm the LRMA has to be done again.



# PERSONAL PROTECTIVE EQUIPMENT (PPE)

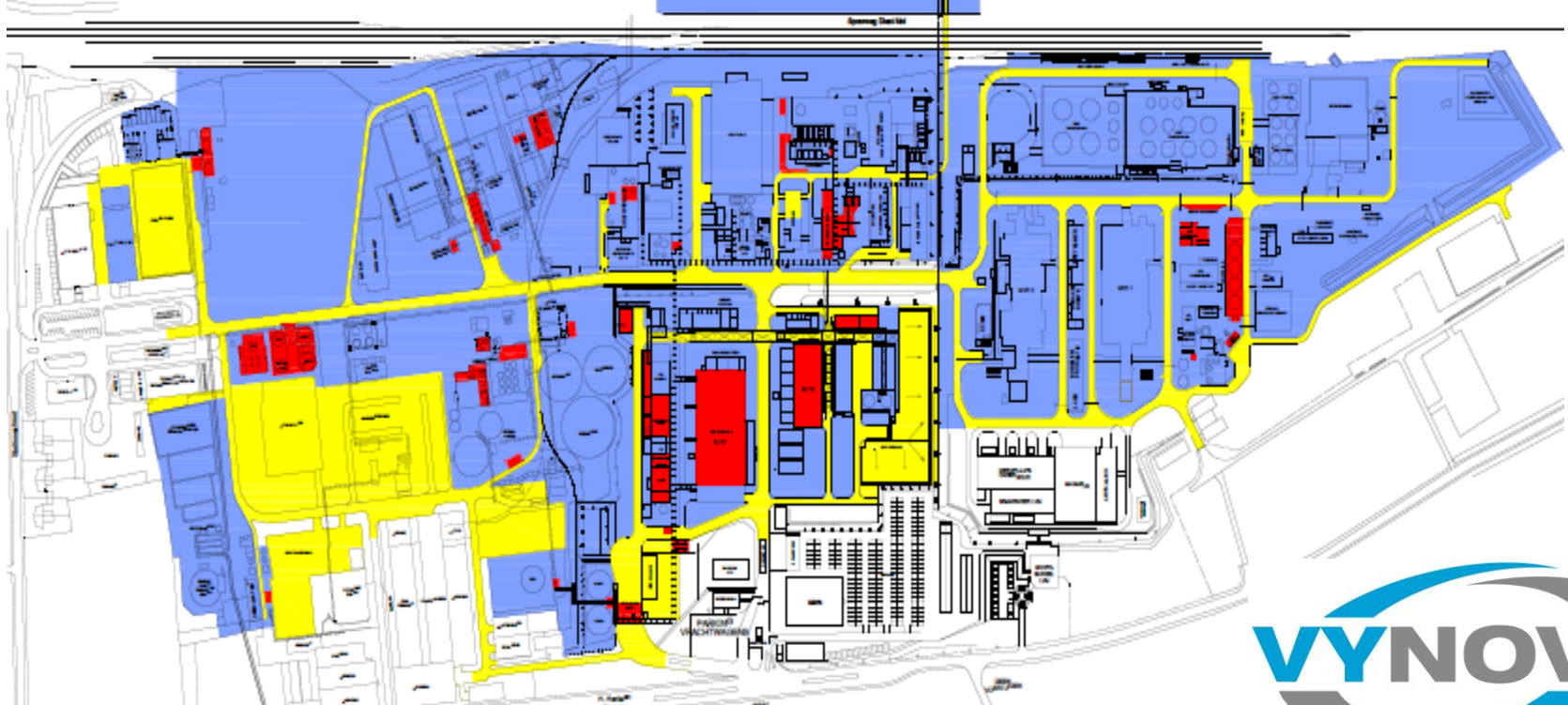
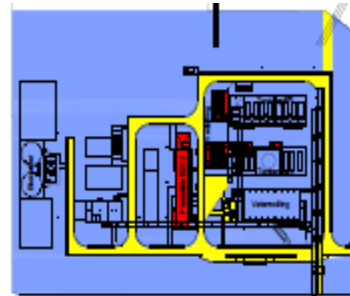
The personal protective equipment are essential at a chemical company, also at the site of VYNOVA and INEOS.

As a precaution to protect the executors, an extensive pallet of PPE is often required. You are obliged to wear these PPE's.



# Personal protective equipment – PPE's

- A plan with PPE area's is made up: yellow – bleu – red





# Personal protective equipment – PPE's

- Always wear appropriate personal protective equipment according to the specified zone.

## GELE ZONE



veiligheidsbril



lange broek  
lange mouw



gordelplicht



Houd je aan  
de snelheid



gsm toegelaten  
tenzij EX-zone

Hoofdwegen

## BLAUWE ZONE



veiligheidsbril



zuurbril  
bij



lange broek  
mouwen



dragen



GSM bijhebben  
**VERBODEN**  
Enkel explosie-  
vrije gsm's

Productie

## RODE ZONE



veiligheidsbril bij



zuurbril  
op



lange broek  
mouwen



dragen



GSM bijhebben  
**VERBODEN**  
Enkel explosie-  
vrije gsm's

Productie



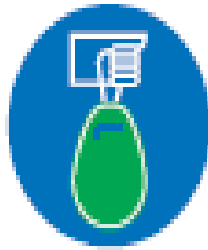
# STANDARD OBLIGATION



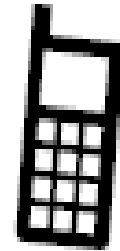
veiligheids-  
bril



lange broek  
mouwen



Houd je aan  
de snelheid



gsm toegelaten  
tenzij EX-zone



- Wear safety glasses
- Have acid glasses with you
- Wear long pants and long sleeves
- Wear gloves
- Mobile phones are prohibited  
Explosion proof mobile phones are allowed



**Production area  
BLUE**



- Have safety glasses with you
- Wear acid glasses
- Wear long pants and long sleeves
- Wear gloves
- Mobile phones are prohibited  
Explosion proof mobile phones are allowed



**Production area  
RED**



# Personal protective equipment – PPE's

Specific PPE's are required depending on the risks of the activity/job. Example: welding, grinding, opening pipelines used for dangerous products. These PPE's are written down in the work permit and have to be worn.

**MAATREGELEN TE NEMEN DOOR  
UITVOERDER**

**NOODNUMMER: 5555**

## Persoonlijke beschermingsmiddelen:

- gezichtsbescherming: **Gelaatsscherm**
- gehoorbescherming:
- valbescherming:
- hand-/armbescherming: **CHEMIE handschoenen**
- isoleermateriaal/-bank
- beschermende kledij: **Chemisch resistente GEEL wegwerpoveral**
- beschermend schoeisel:
- vluchtmasker
- adembescherming:

**VGM 239 PBM-MATRIX**

Minimum PBM (volgens de eisen van de PBM), die preventief dienen afgevoerd te worden bij mogelijk productcontact tijdens verschillende activiteiten.  
 Tijdsduur afhankelijk van de risico's van de activiteit (zie de instructies) of van mechanische bescherming van de handen.  
 De te gebruiken PBM's worden vermeld op de werkbepalingen van de taakbeschrijvingen.  
**Standaard veiligheidsdrukking (PBM): zie VGM 238**



PBM	EIGENSCHAPEN	Materiaal	Type	Hand	Arms	Gezicht	Hoofd	Schuif	Vallen	Vernieuwen	PBM: Productcontact tijdens bijzondere handelingen				Productcontact tijdens normale bedieningsactiviteit								
											Hand	Arms	Gezicht	Hoofd	Hand	Arms	Gezicht	Hoofd					
P018	SALIEHYDROLYSE (S01)	KOH			X						1	HHH2	L3/L4	V1	G6 + A2	1	HHH2	7 - L3/L4	V1*				
P019	WATEROPLOSSING	H <sub>2</sub> O <sub>2</sub>				X	X				2	HHH2	L3/L4	V1	G6 + A2	1	HHH2	7 - L3/L4	V1*				
P020	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P021	WATEROPLOSSING (S01-S02)	H <sub>2</sub> CO <sub>3</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P022	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P023	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P024	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P025	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P026	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P027	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P028	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P029	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P030	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P031	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P032	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P033	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P034	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P035	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P036	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P037	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P038	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P039	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P040	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P041	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P042	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P043	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P044	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P045	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P046	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P047	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P048	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P049	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P050	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P051	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P052	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P053	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P054	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P055	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P056	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P057	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P058	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P059	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P060	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P061	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P062	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P063	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P064	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P065	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P066	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P067	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P068	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P069	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P070	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P071	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P072	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P073	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P074	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P075	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					2	HHH2	L3/L4	V1	G6 + A2	2	HHH2	7 - L3/L4	V1*				
P076	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>				X					1	HHH5	L3/L4/L	V1	A4 + A2	1	HHH5	7 - L3/L4	V1*				
P077	WATEROPLOSSING (S01-S02)	H <sub>2</sub> SO <sub>4</sub>																					

# HAZARDOUS PRODUCTS

VCM or monovinylchloride is the main end product of VYNOVA Belgium and is the basic raw material for the production of PVC. The VCM-production takes place at the VCM-plant with ethylene and chlorine gas as raw materials. The electrolyses departement delivers the chlorine gas.

The other main products on the site are hydrochloric acid (HCl), sulphuric acid (H<sub>2</sub>SO<sub>4</sub>), caustic soda (NaOH), caustic potash (KOH) and sodium hypochlorite (NaOCl).

For Tessenderlo Chemie VYNOVA produces feric chlorite (FeCl<sub>3</sub>) and sulfhydrate (NaHS) on the basis of hydrogen sulphide.

INEOS uses chlorine and toluene to produce benzyl chloride (CBY1) and derivates.



# The dangers of chemicals

---

- VYNOVA Belgium en INEOS are both SEVESO companies because of the **production and storage of dangerous goods**. The goods can be found everywhere on the site.
- Never think that gases and puddles are vapours or just water. Always be carefull and ask the production division for controlling.
- Loss of containment, leaks and odour nuisance are not normal. Stop working and report immediately the production departement.
- Always respect the PPE-regulations of your permit.



# Cl<sub>2</sub> - chlorine

---



- Production of chlorine at **electrolyse-department**
- Yellow green gas with stinging/pricking smell.
- At low concentrations (3 till 15ppm) chlorine irritates respiratory organs.
- From 30ppm: heavy cough, throwing up and trouble with breathing
- High concentrations (> 50ppm) can lead to death.





# H<sub>2</sub>S – hydrogen sulfide

---



- Production of H<sub>2</sub>S at **sulphydrate-department**
- Colourless and toxic/poisonous gas.
- At low concentrations the gas smells like rotten eggs. ( <150ppm)
- At high concentrations the gas is **odourless** and leads ( > 500ppm) immediately to unconsciousness with death.
- Obligation to carry individual H<sub>2</sub>S-meter in sulphydrate installations
- By alarm go to the controlroom.
- An almost fatal accident on our site 28/1/2010 because H<sub>2</sub>S was formed by wrong mixing of products.



# Caustics

---



## Various acids and bases at ALL departments

### Acids

Zwavelzuur -  $\text{H}_2\text{SO}_4$

Zoutzuur -  $\text{HCl}$

Ijzer-3-chloride –  $\text{FeCl}_3$

Benzaldehyde - BAH

### Bases

Natronloog -  $\text{NaOH}$

Kaliloog -  $\text{KOH}$

Javel -  $\text{NaOCl}$

Natriumwaterstofsulfide -  $\text{NaHS}$

Natriumsulfide -  $\text{Na}_2\text{S}$

# Carcinogenic products

---



## MVC afdeling

Monovinylchloride MVC

1,2 dichloorethaan EDC

Lights 300

Lights 500

Heavies

Solvesso

## BZC 1 en 2 afdeling

Tolueen

Ortho chloro Tolueen

Benzylchloride CBY1

Benzalchloride CBY2

Benzotrichloride CBY3



# Inflammable products

---



## MVC afdeling

Monovinylchloride MVC

1,2 dichloorethaan EDC

Lights 300 en 500

Heavies

Ethyleen

Aardgas

## Electrolyse

Waterstof

## Sulfhydrate

Waterstof

Waterstofsulfide – H<sub>2</sub>S

## BZC 1 en 2 afdeling

Tolueen

Ortho chloro Tolueen



# Measuring devices

- Sometimes measuring devices are required at the working spot (see work permit)
- Common used measuring devices : H2S, O2/LEL, Cl2
- Ask how the devices and the alarm levels function and how to react.
- Always bump the devices before use!

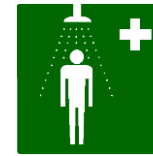
ELY	Trekgang cellenhal ELY2
Sulfh	Buiten aan meetkamer sulphydrate
BZC	Meetkamer BZC1 kant productie
LVM	MVC1 tov lokaal chef van dienst
LVM	MVC2 tov lokaal chef van dienst



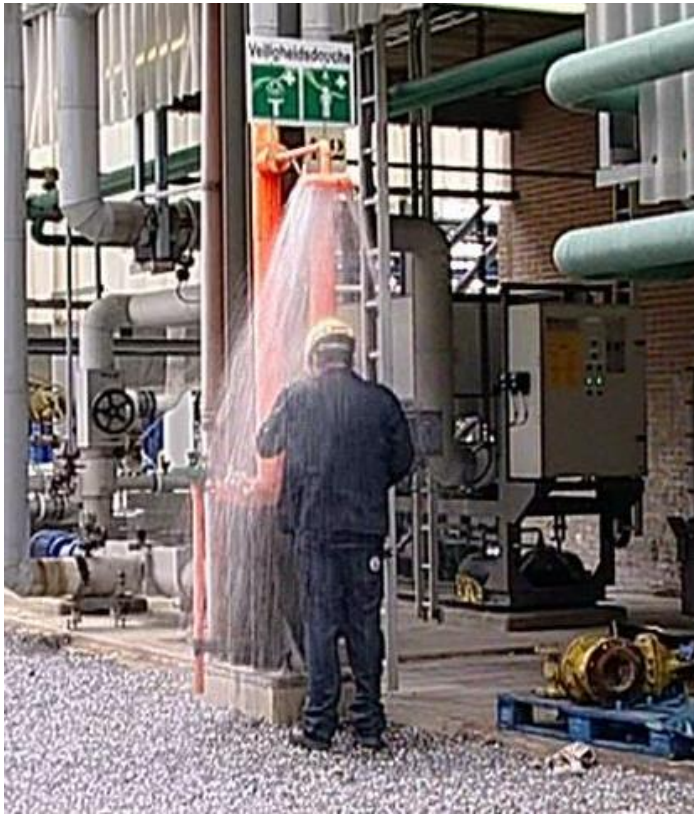
**As user always bump your device YOURSELF!**



# Use of emergency and eye showers



- **With EVERY contact of product > rinse 15 minutes**
- Use emergency and eye showers!
- Call 5555
- Even in doubt, **ALWAYS** go to the medical service



**AT WORK**



# Electrical machines and cables

- Machines with damaged cables constitute a major electrocution hazard and may never be used. Electrical machines and cables need to be **in perfect condition**. Check them before use.
- Keep cables away from passages and stairs as much as possible. Preferably use S-hooks to hang up cables





# Demarcations

- If you carry out work that is hazardous for others (e.g. assembly work, sandblasting, hoisting...), the **risk area needs to be demarcated** (e.g. with signalisation ribbon).
- Newly-built platforms, holes, ... need to have a solid barrier (in wood or metal).
- Try to stay out the “line of fire” during work. This means the route of sudden released energy. E.g. don't hold workpieces at the end (danger for crushing).



# Fall protection

- In case of activities at height, fall protection is necessary, also on ladders.
- Avoid using ladders. Prefers racks, platforms, lifts, .....
- Wearing and securing fall protection is compulsory in a cherry picker.
- Opening grid floors requires authorization of VYNOVA / ICT (VGM064).



Almost-accident : fall through loose grid on 14/05/2014



# Scaffolding

- Scaffolding may only be used when a **valid tag** is present.
- **No changes** (not even temporarily moving a plank) are allowed to be made by unauthorized people
- Order and cleanliness, also on scaffolding!
- Never use parts of installation, pipelines or gutters as support or as walking platform



# Use of ladders

- The use of ladders for executing a job = exceptional
- Working on ladders with **standing height > 7m is prohibited.**
- Conditions: **short term, no hard work, do not reach far and 3-point contact.**
- Deviation is acceptable providing a risk analysis
- **If standing height > 2m secure the ladder or a 2nd person to hold the ladder**
- **If no 3-point contact → wear fall protection** (fall heights ~ type of fall protection)
- Take care that the position of the ladder is right.
- Always fill in the LMRA before using the ladder



# Working safely on plant/installations



- Installations will only be operated by VYNOVA personnel
- The safety of the installations is visible through labeling by using hazard maps
- When you work on rotating equipment.
- Lock the work switch, this is mentioned on your work permit.

- Brown lock in the field equipped with:
  - Name company
  - Name VYNOVA responsible



- vonkafscherming plaatsen
- omgeving afspannen/isoleren
- werkzone en lager gelegen gebieden afbakenen
- signalisatie:
- hangslot plaatsen: **bedieningschakelaar**  
nr. **pp9001**
- start/stop test uitvoeren
- controle spanning
- ventilatie
- persoonlijke gasdetectie type:
- communicatiemiddel voorzien:
- verlichting:
- melden onderbrekingen en hervatting werk
- inspectie na de werken
- brandbaar materiaal verwijderen
- kraan

Persoonlijke bescherming: .....



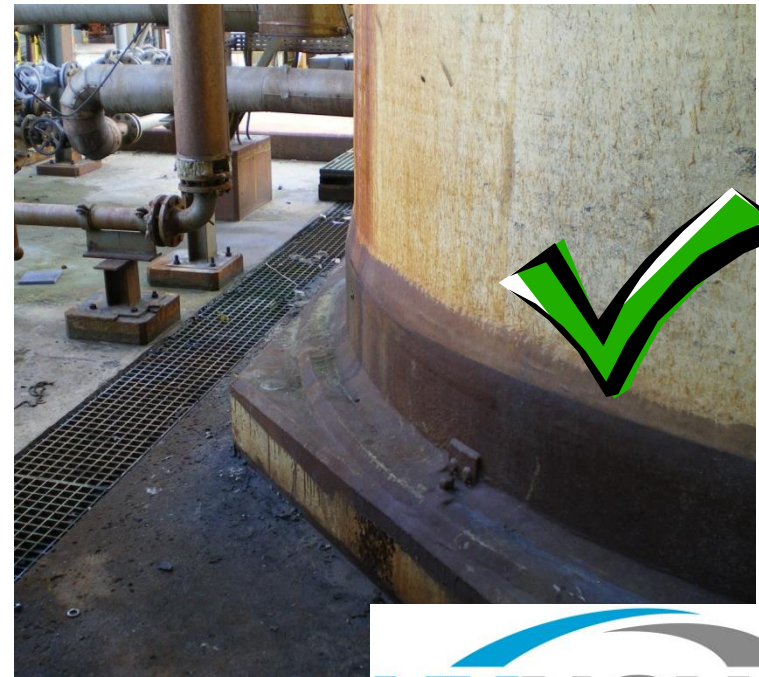
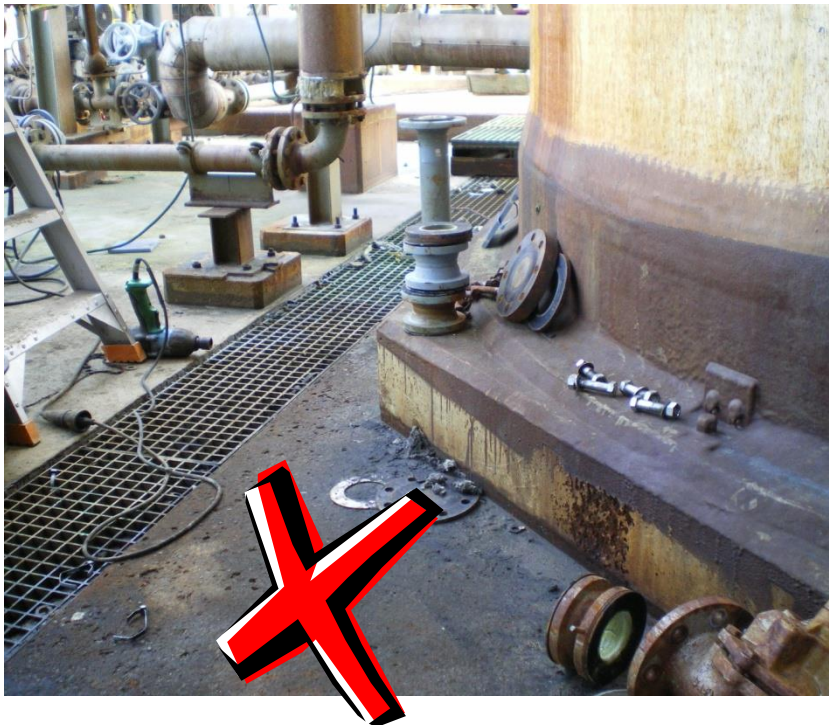
# **HYGIENE AND HOUSEKEEPING**



# Order and cleanliness

---

- Accidents are often caused by a sloppy workplace.
- After the work, the work area needs to be cleaned up. This is the sign of a true professional.
- **Always and everywhere!**



# Emergency facilities

---

- Fire-extinguisher must be accessible.
- Fire-cases are sealed and can only be opened in case of fire.





# **ACCIDENTS and EMERGENCY SITUATIONS**



# Accidents and emergency situations

---



Accident ?!



Gas leak ?!



Fire ?!



**5555**



# Accidents and emergency situations

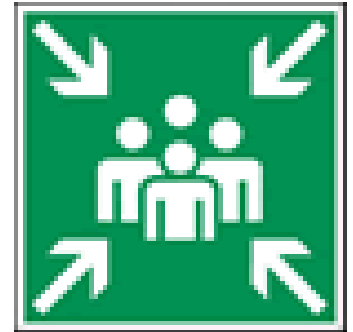
- Push-buttons on installations initiate alarm.
- Use them in case of emergency.
- Or call 5555.



# Assembling alarm

---

- One alarm = **ASSEMBLING ALARM.**
- Bring your working place to a safe condition.
- All permits and LMRA cards will be suspended.
- Go to the nearest **assembly point**, upright to the wind direction
- Long tone = all clear, situation is safe again
- Permits needs to be issued again
- **TEST ALARM = every Wednesday at 10 am**



# Assembly point



- Your preference assembly point is on your permit
- Go to the nearest **assembly point**, upright to the wind



- Stand in **sector C**.
- The assembly point leader gives further instructions.
- No assembly point leader present :  
Sign up your presence by telephone to a measuring room or at the Security service

## MAATREGELEN TE NEMEN DOOR UITVOERDER

**NOODNUMMER: 5555**

Het werk dient te worden gestaakt of mag niet worden begonnen bij:

1. Alarm
2. Een wijziging van de werkomstandigheden
3. Op aanwijzing brand-/veiligheidswacht of medewerker TC

**Verzamelaats: MVC eetzaal werkplaats**



# Prohibitory sign

 	<p>TOTAL <b><i>Fire and smoke prohibition</i></b> (also in vehicles)</p>
 	<p>Prohibition to bring in, to have on you and to use <b><i>alcohol and drugs</i></b></p>

**Smoking is only  
allowed in smoking  
areas**



Smoke Zones in the factory  
Helmet and glasses duty  
Forbidden to eat and drink



# Prohibitory sign

---

**Mobile phones are prohibited** in all production areas.



**Explosion proof mobiles** are allowed in production areas.



## Prohibitory sign

---

	<p><b><i>Prohibitions to eat and drink</i></b> in production area and working places</p>
	<p><b><i>Prohibition to take photos or to film.</i></b></p>
	<p><b><i>Unauthorized access prohibited.</i></b></p>



# ENVIRONMENT CARE



# Environment care

---

- Waste is collected separately.
- Materials contained with product = class 1 waste
- Do not burn scrap materials on the factory site.
- Never pour products in the sewer without permission given by an VYNOVA supervisor.



# Welcoming brochure Test

---

- We hope you understood these instructions.
- You need to pass the test to receive your personal badge.
- You can read all these safety instructions again in the welcome brochure and card with the safety guidelines that you will receive!
- Good luck and work safely!

