

# EXPLOSIONES INDUSTRIALES



**3º JORNADAS NACIONALES DE  
SEGURIDAD CONTRA INCENDIOS**  
Córdoba 9, 10 y 11 de noviembre de 2017

**UTN**  
FACULTAD  
REGIONAL  
CORDOBA

 **CAPESI**

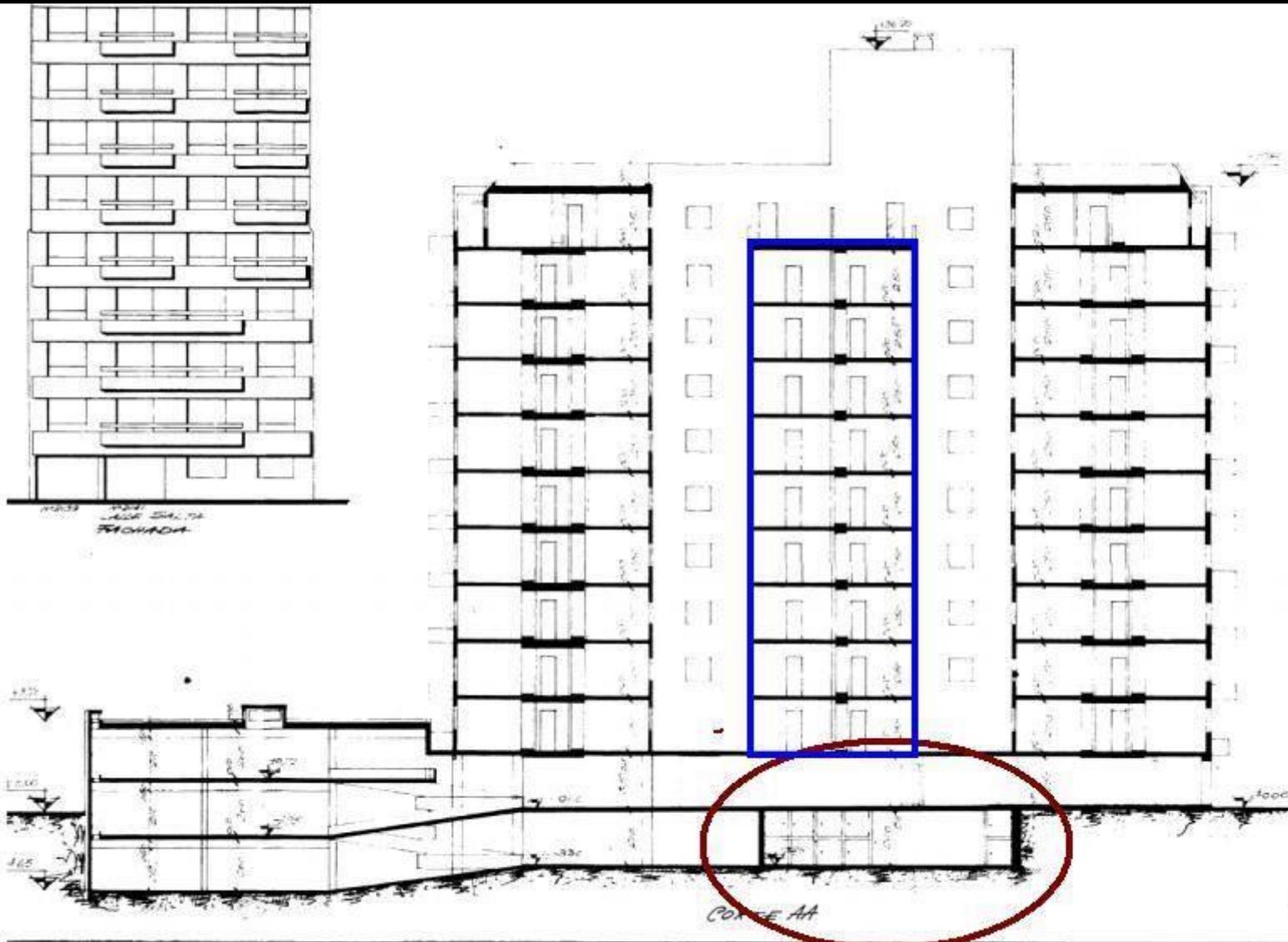
 **FCEPyH**











000	TOTAL	5475	255	180
001	TOTAL	5475	255	180
002	TOTAL	5475	255	180
003	TOTAL	5475	255	180
004	TOTAL	5475	255	180
005	TOTAL	5475	255	180
006	TOTAL	5475	255	180
007	TOTAL	5475	255	180
008	TOTAL	5475	255	180
009	TOTAL	5475	255	180
010	TOTAL	5475	255	180
011	TOTAL	5475	255	180
012	TOTAL	5475	255	180
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019	TOTAL	5475	255	180
020	TOTAL	5475	255	180
021	TOTAL	5475	255	180
022	TOTAL	5475	255	180
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024	TOTAL	5475	255	180
025	TOTAL	5475	255	180
026	TOTAL	5475	255	180
027	TOTAL	5475	255	180
028	TOTAL	5475	255	180
029	TOTAL	5475	255	180
030	TOTAL	5475	255	180

MEDIDORES

**Que es una Explosión?**

**Liberación**

**Gas**

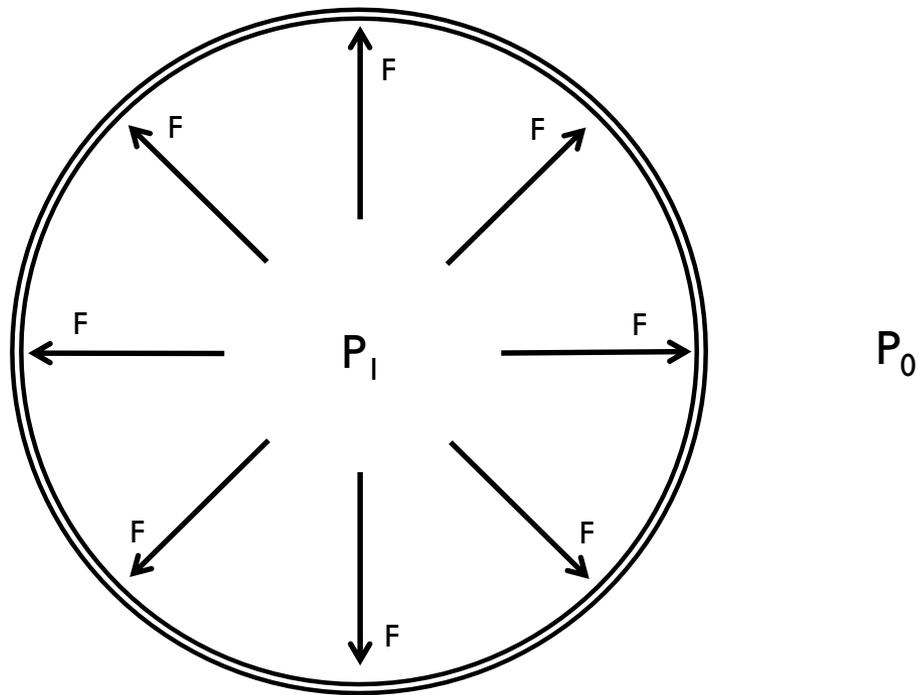
**Alta Presión**

**Ambiente**

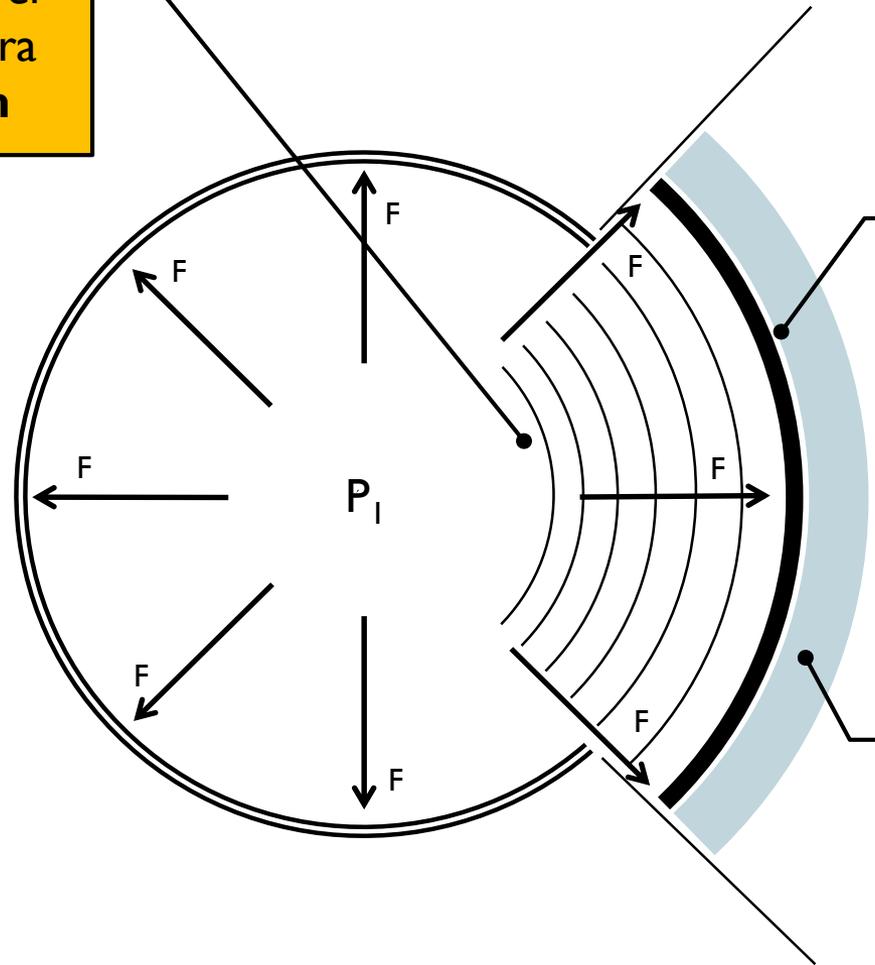
**Súbita**



$$P_1 \gg P_0$$

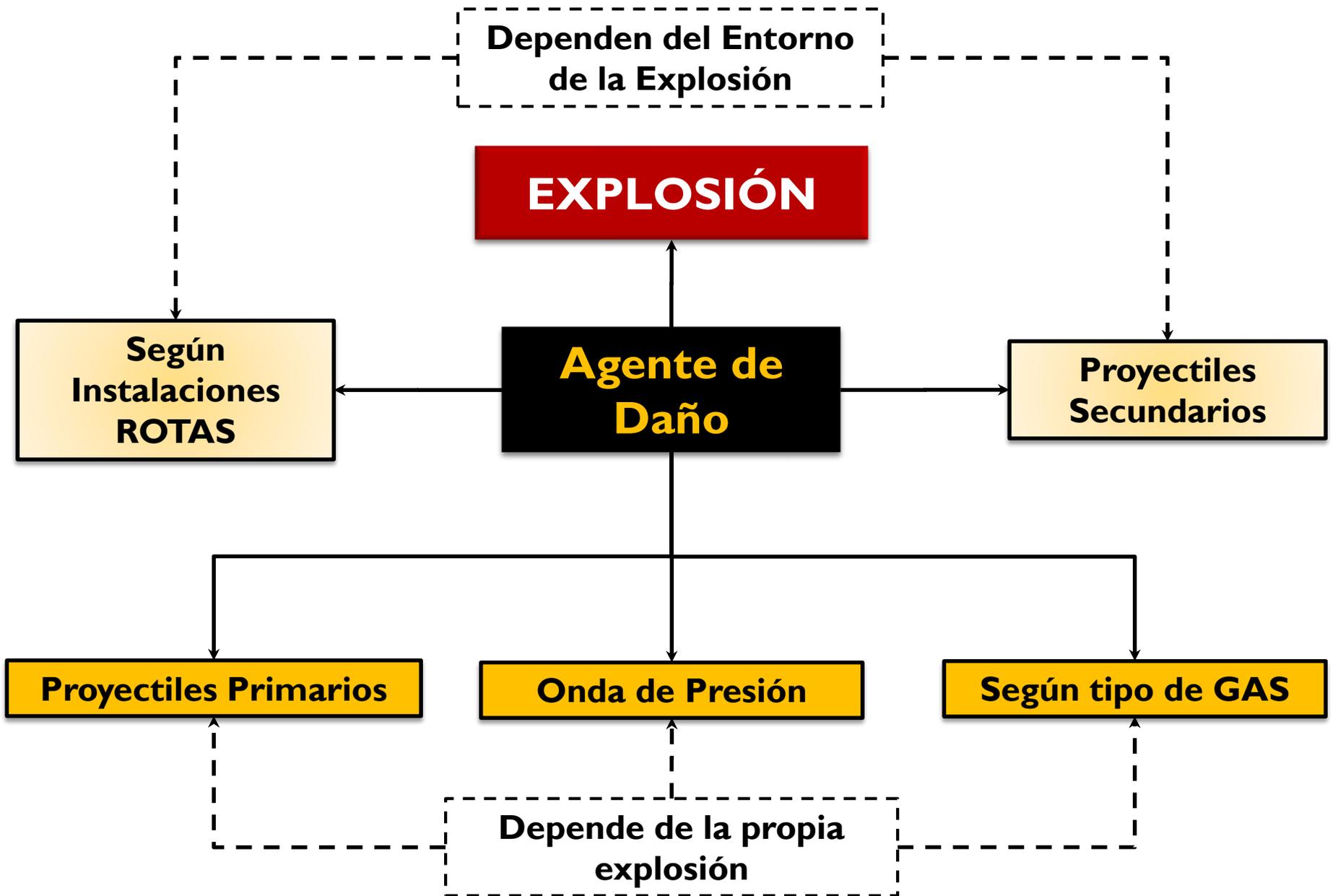


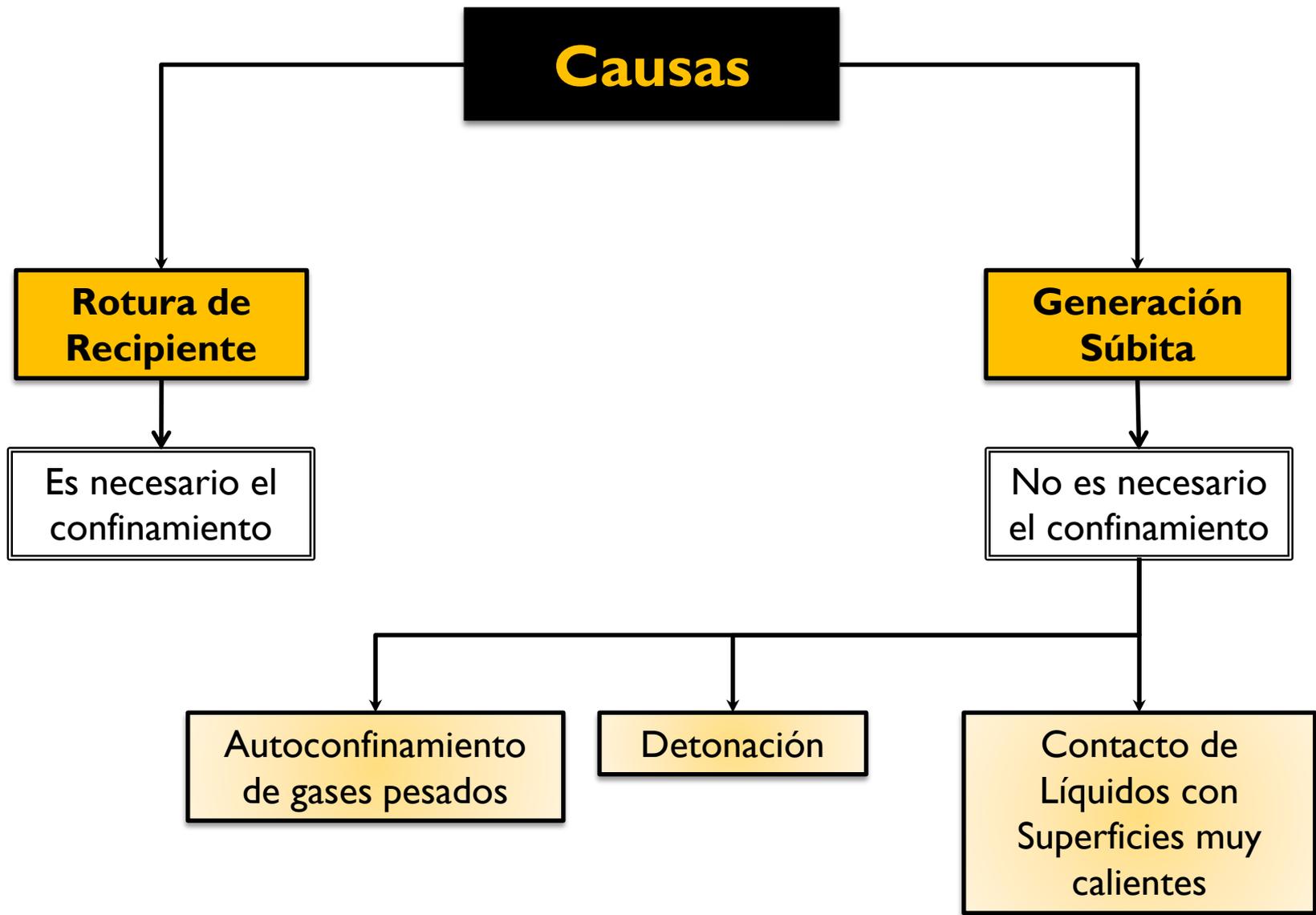
Gas que se expande en el medio ambiente y genera una **onda de presión**



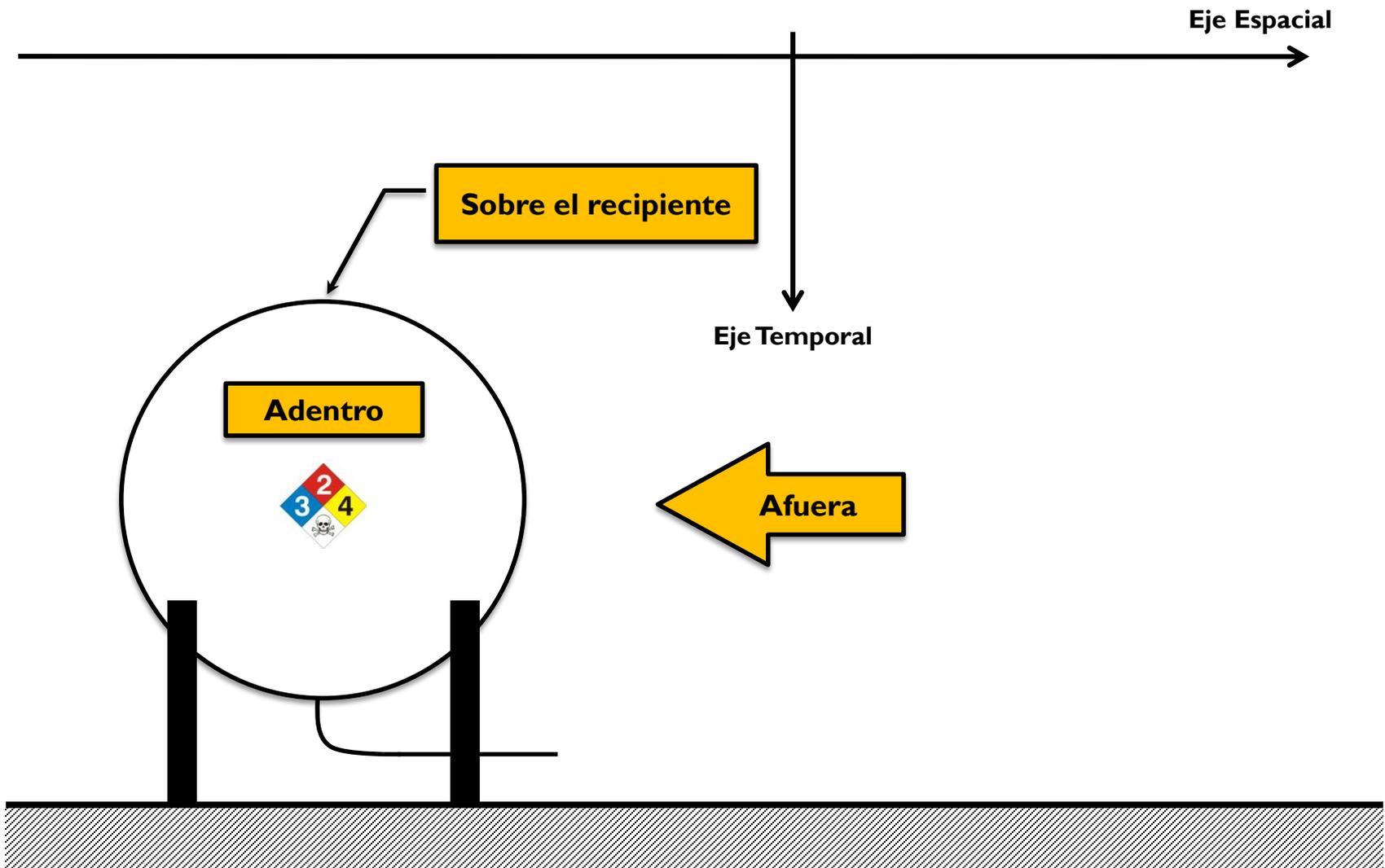
Zona de compresión del aire

Aire quieto

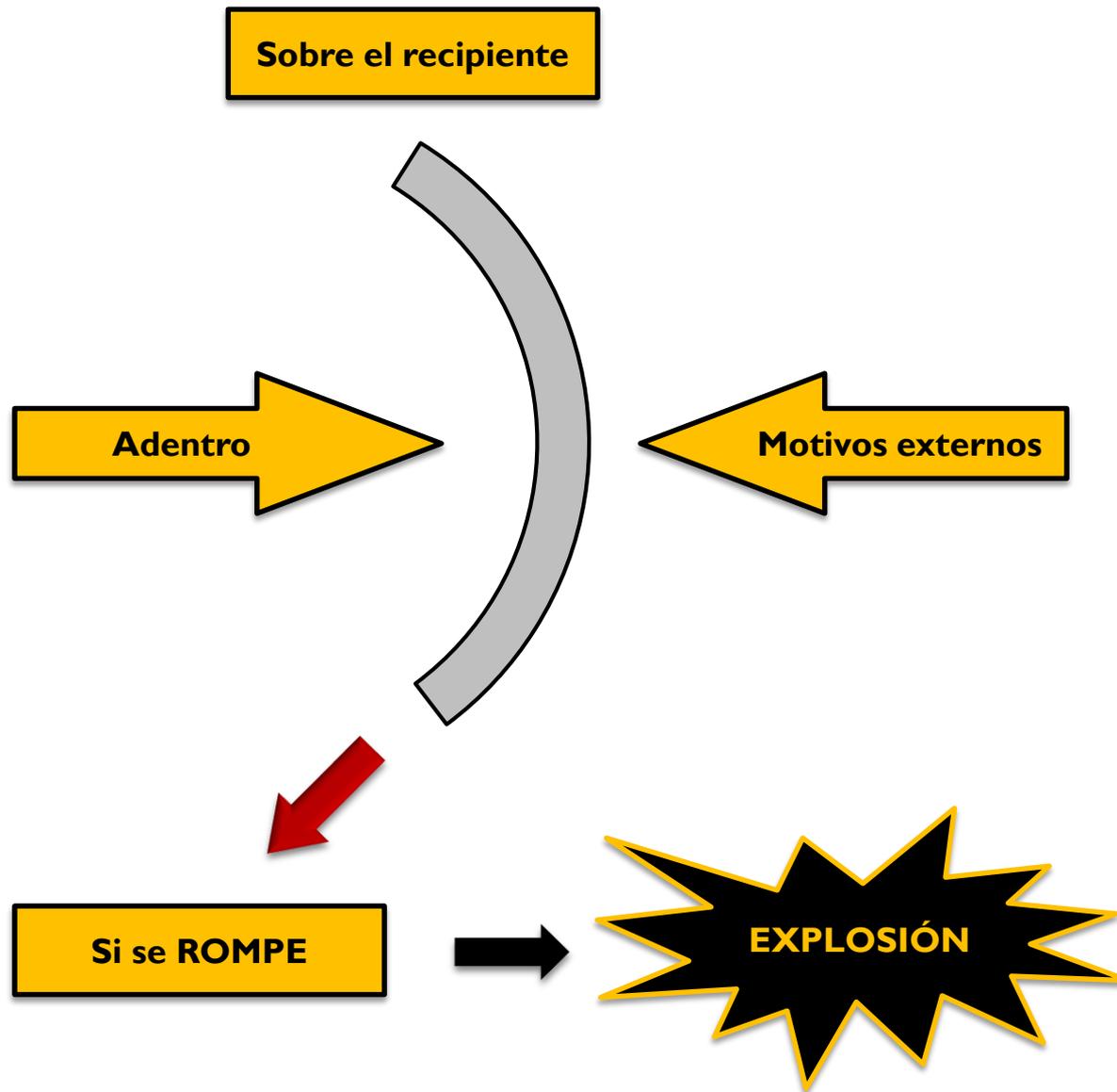


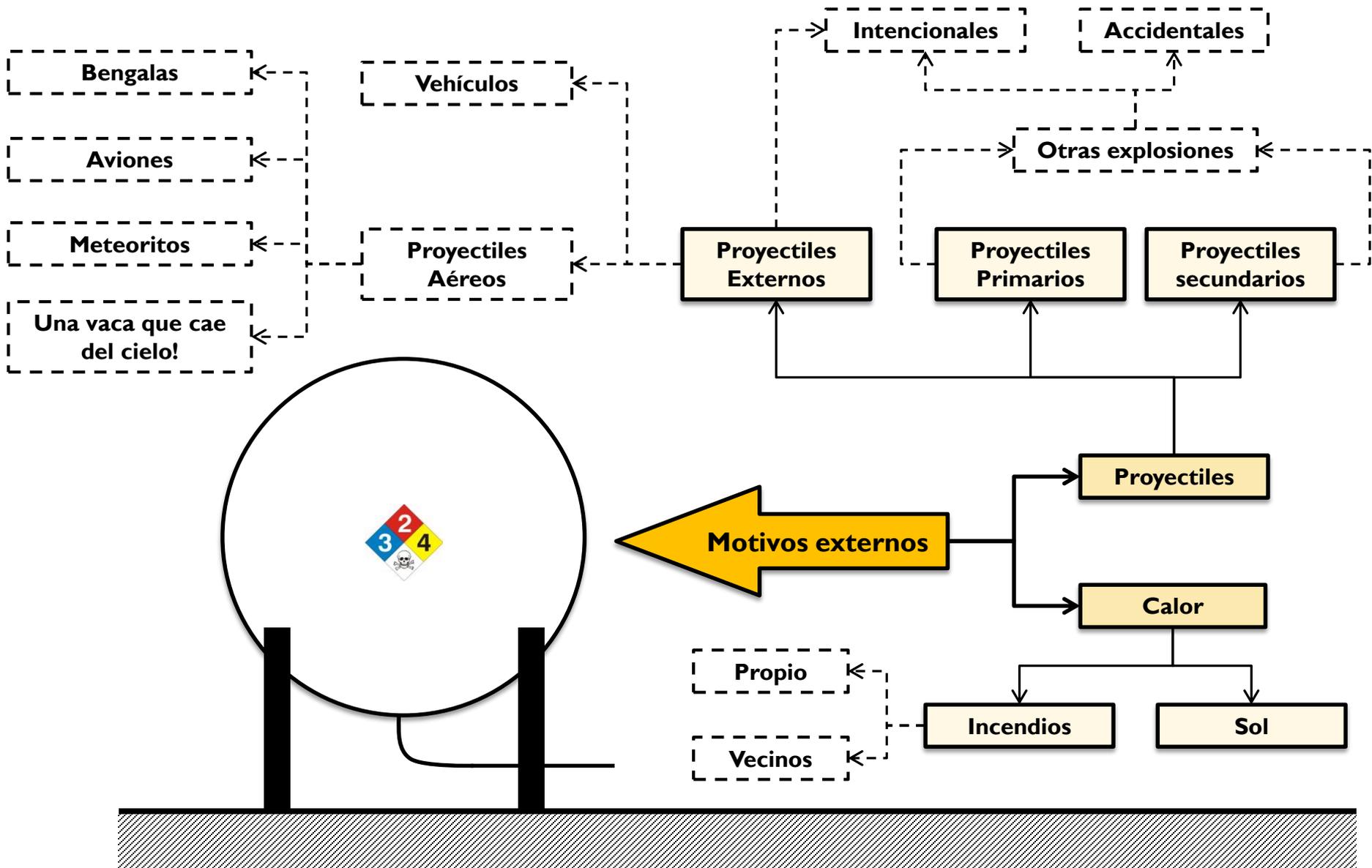


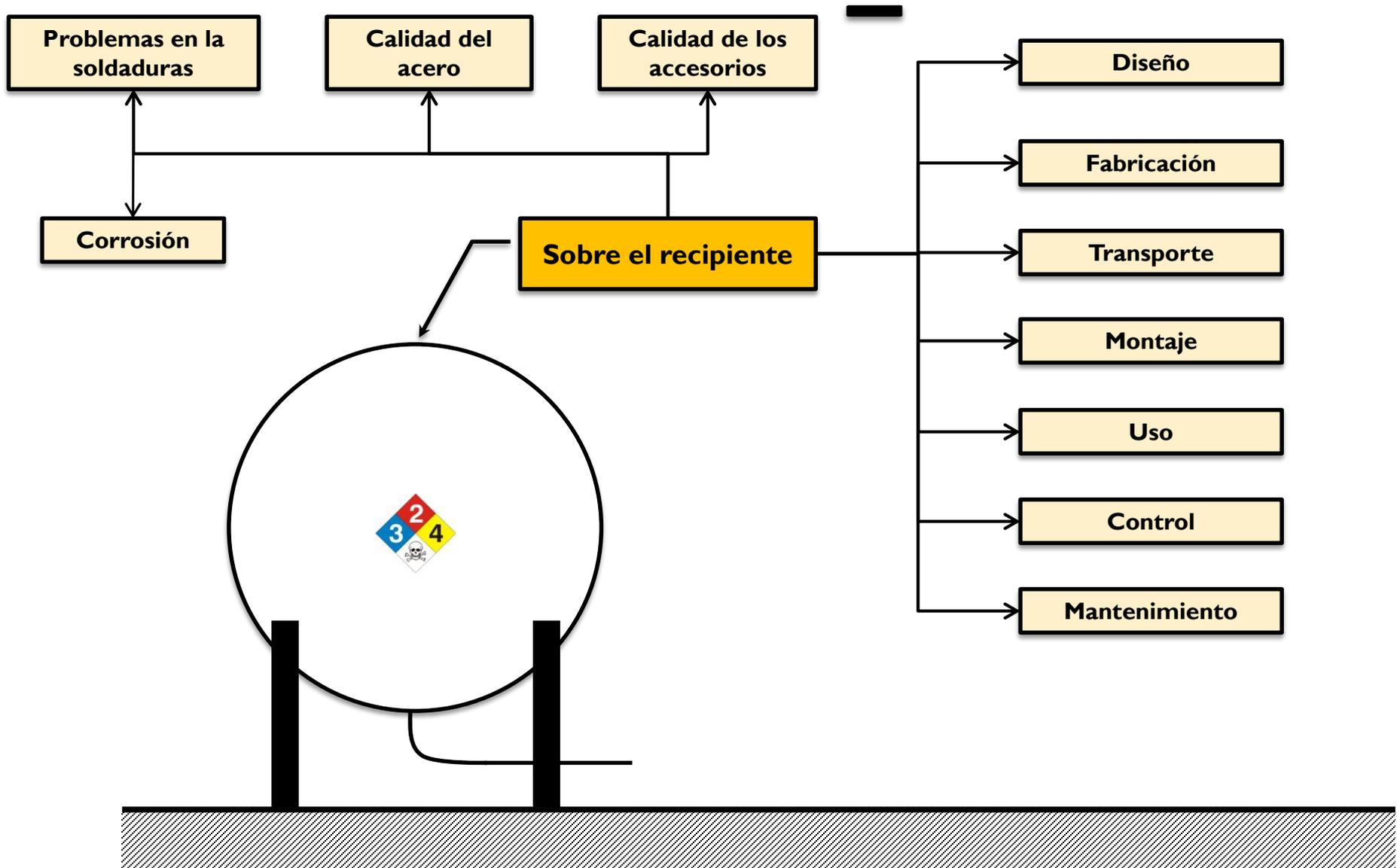
**Análisis de los Explosión  
que Necesitan  
Confinamiento**

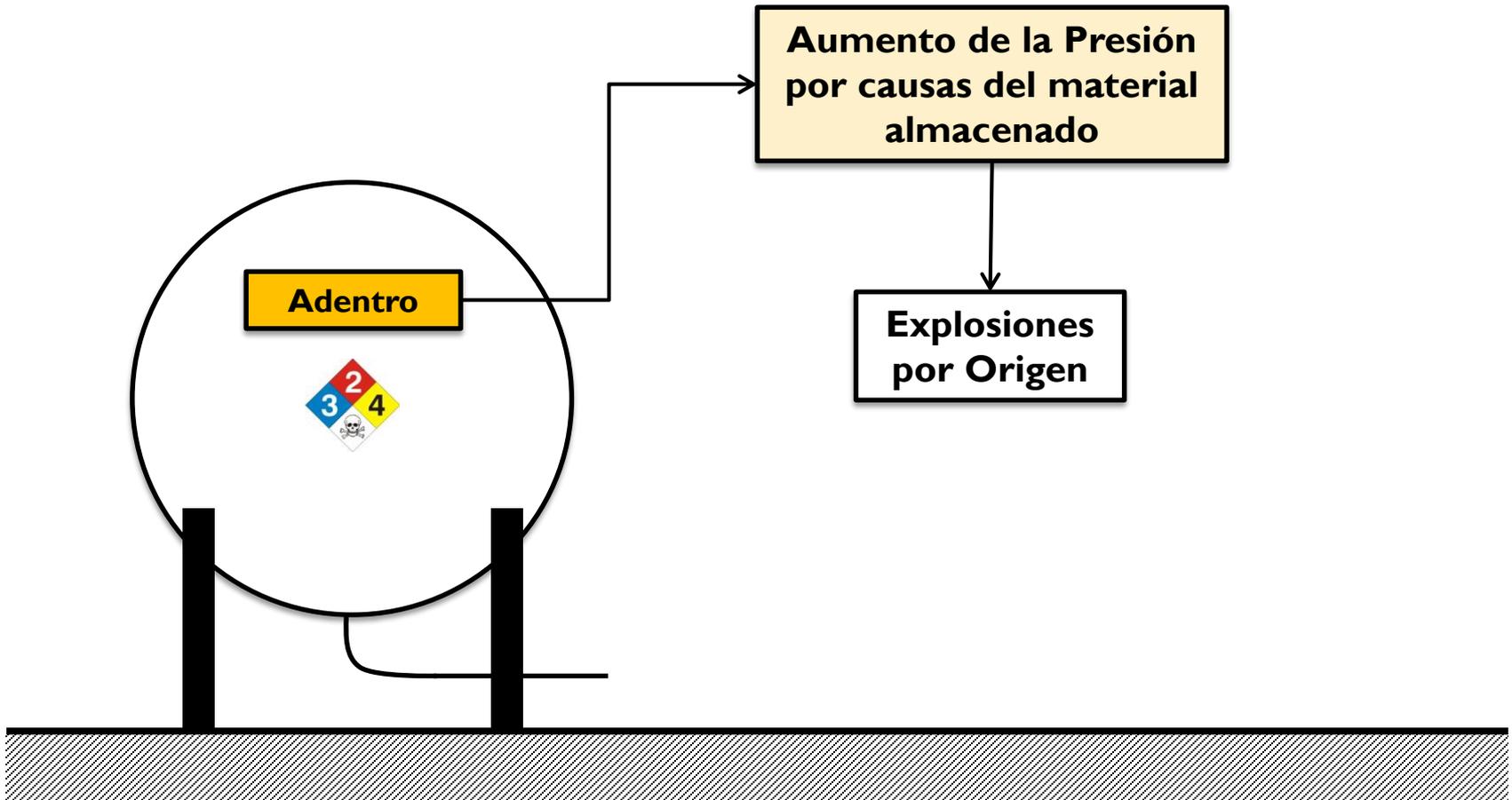


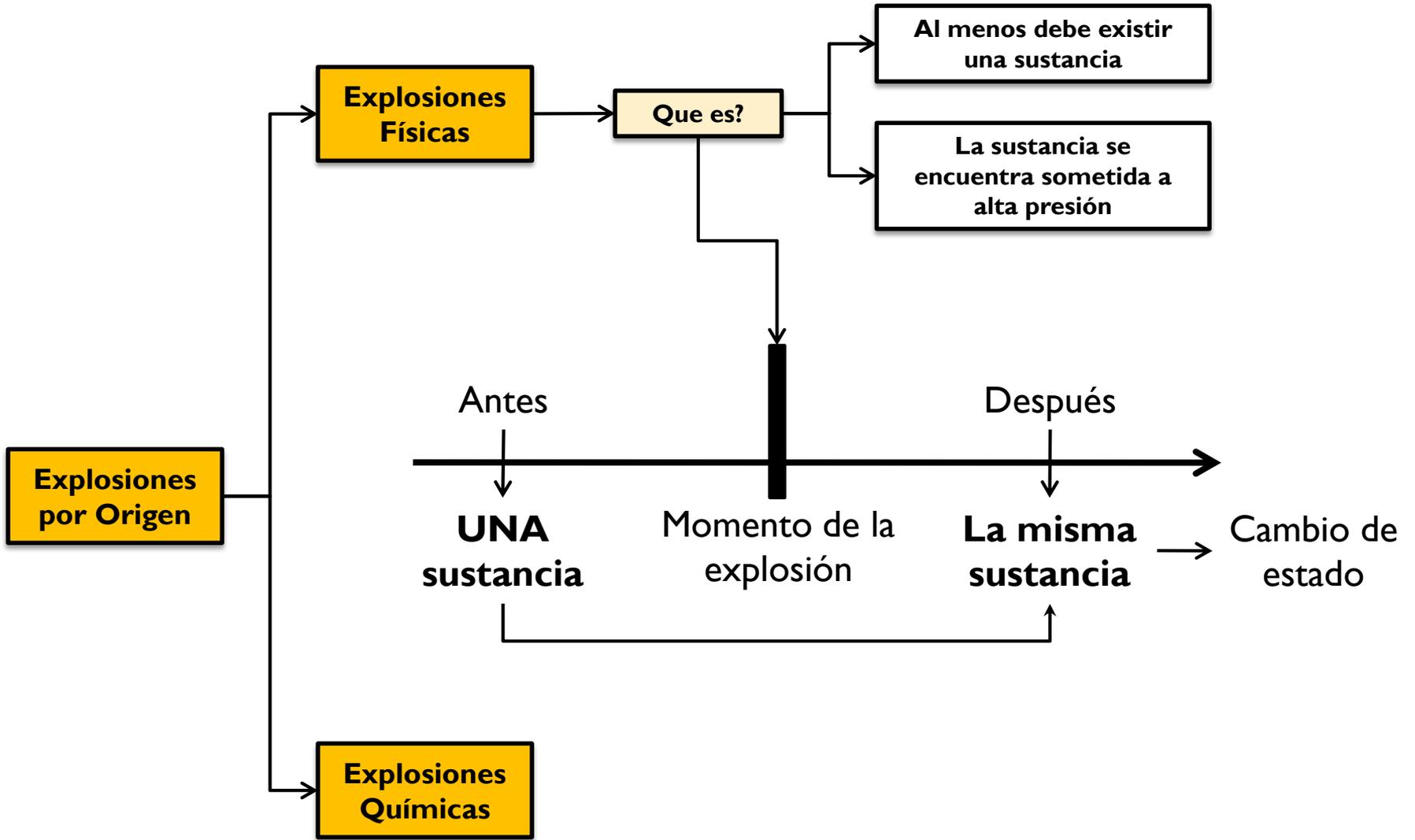
**La Explosión es un  
Proceso Relativo**

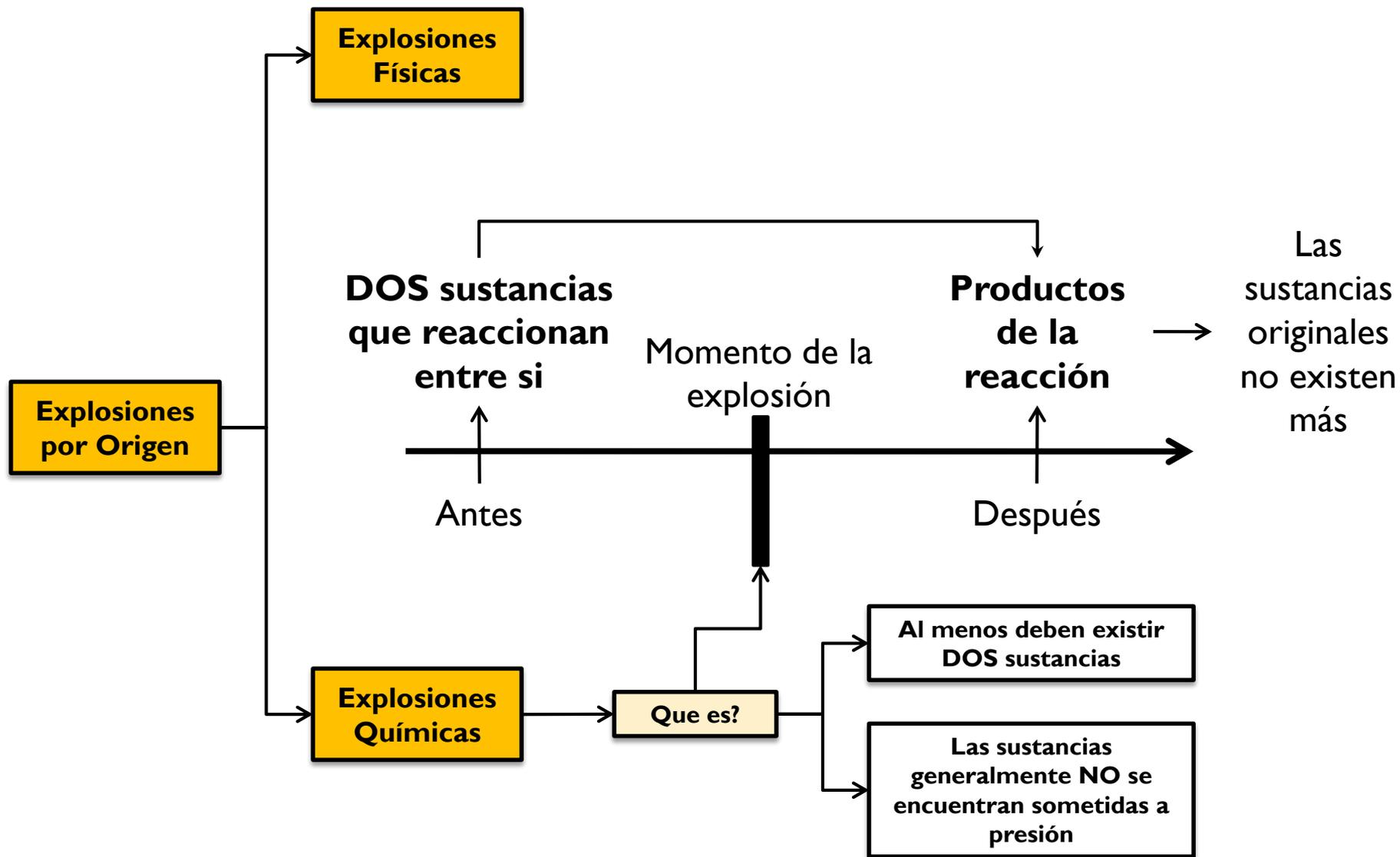








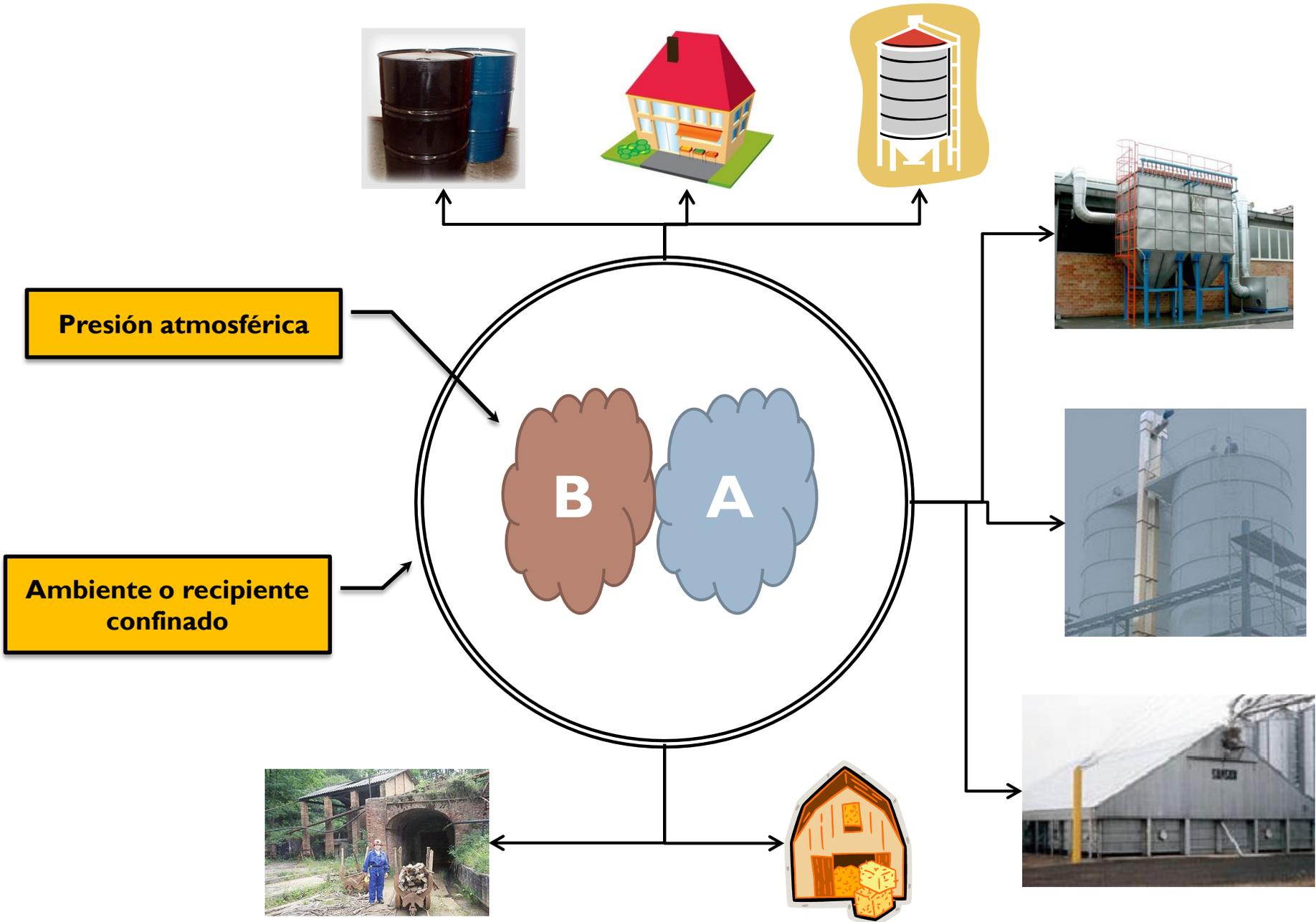


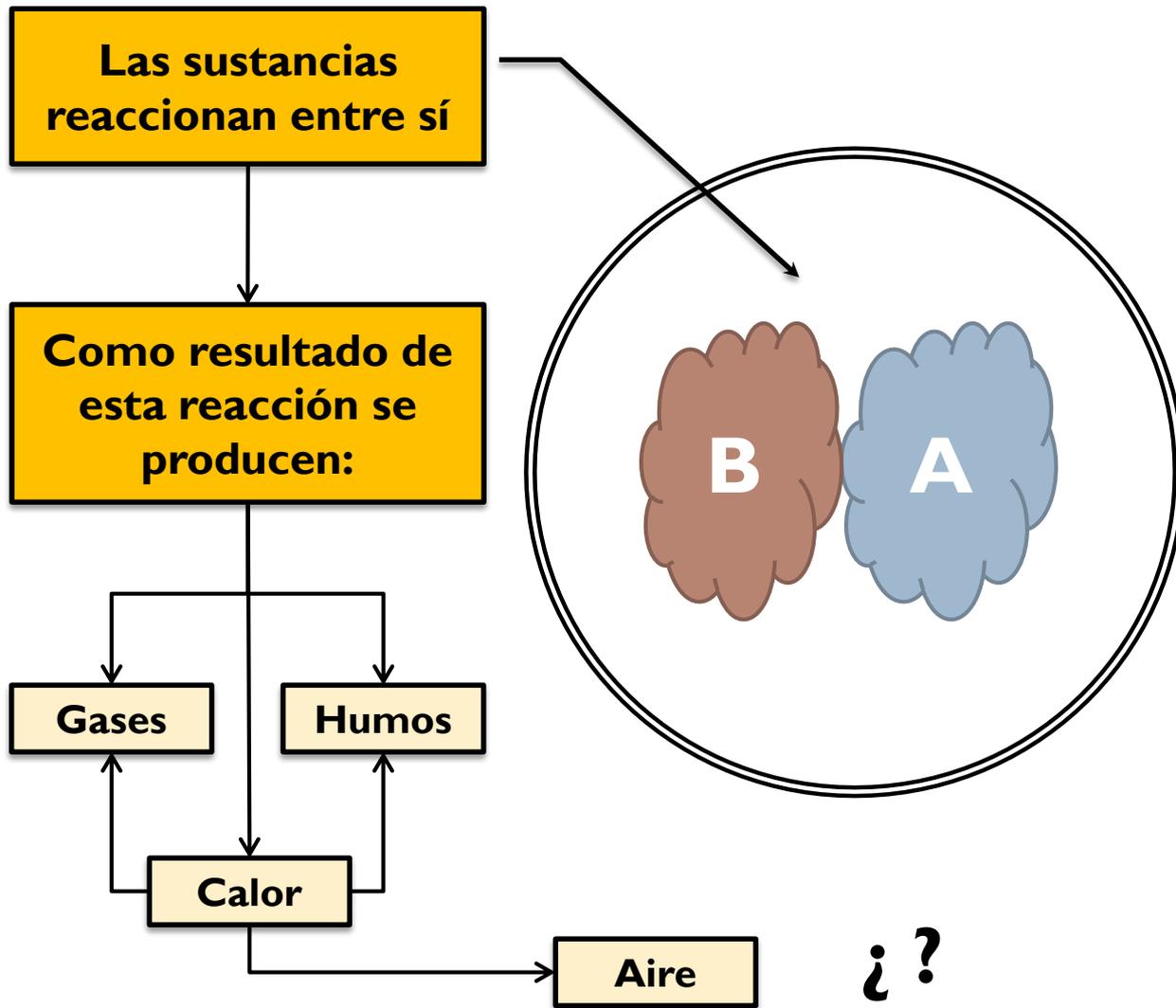


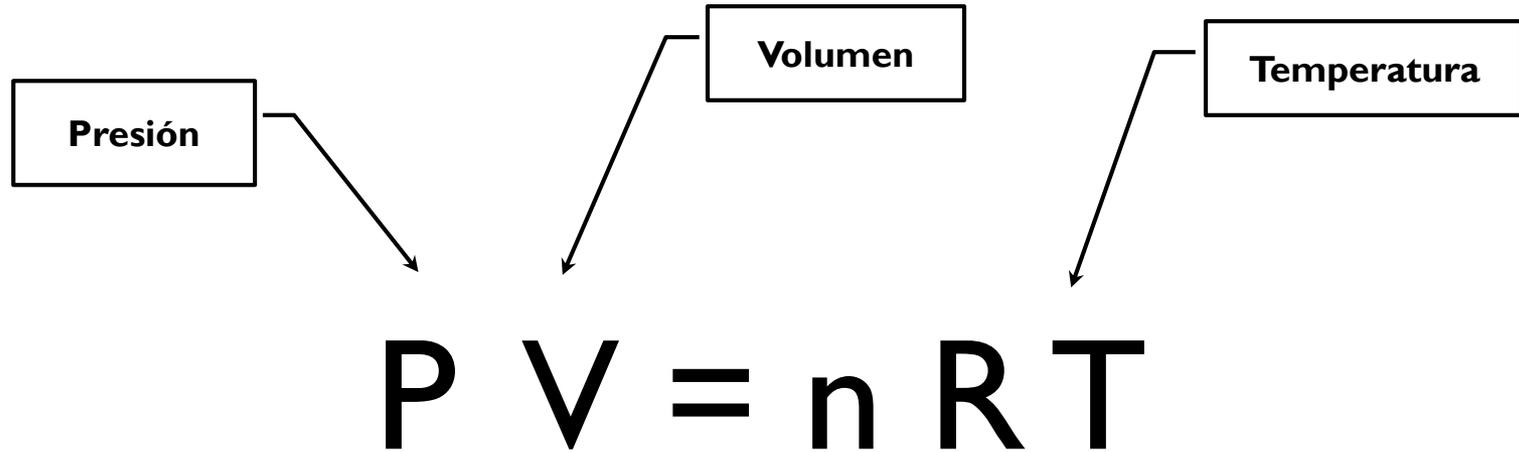
# Cómo Suceden las Explosiones Químicas?

**Todas las Explosiones Químicas suceden  
de la misma manera.**

**Sólo cambian las formas de reacciones y  
los tipos de sustancias involucradas**



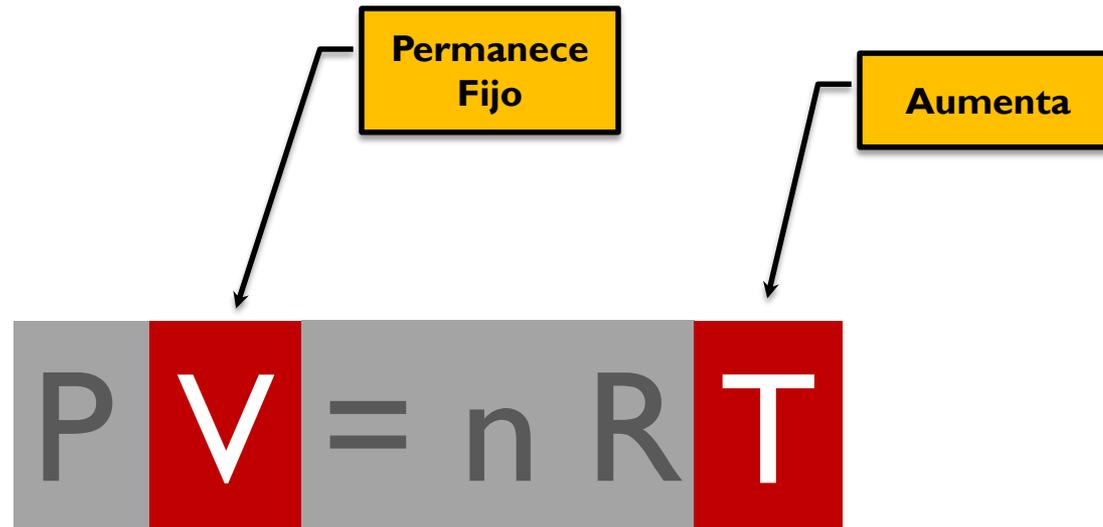




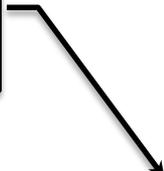
$$P V = n R T$$

Aumenta

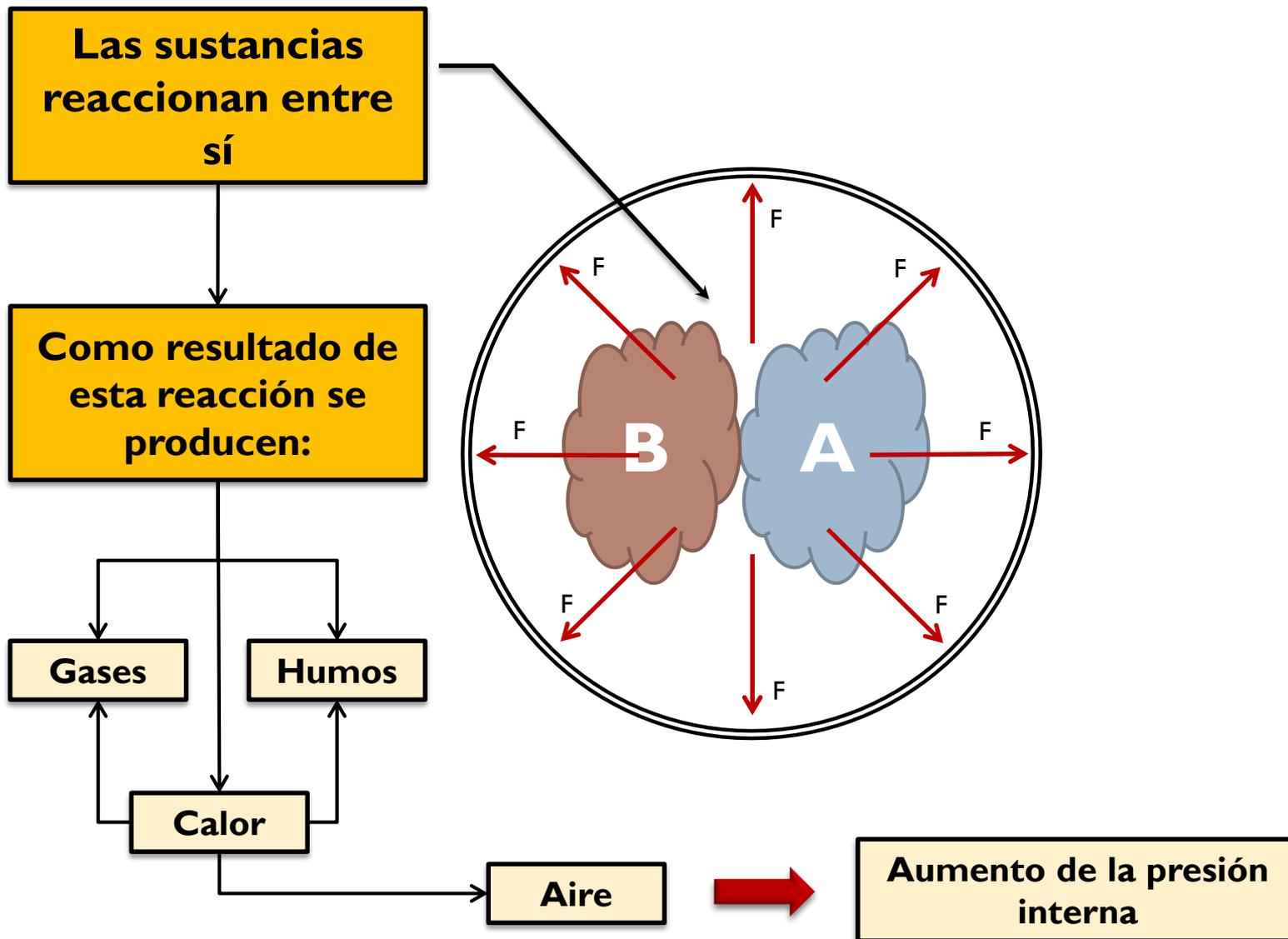


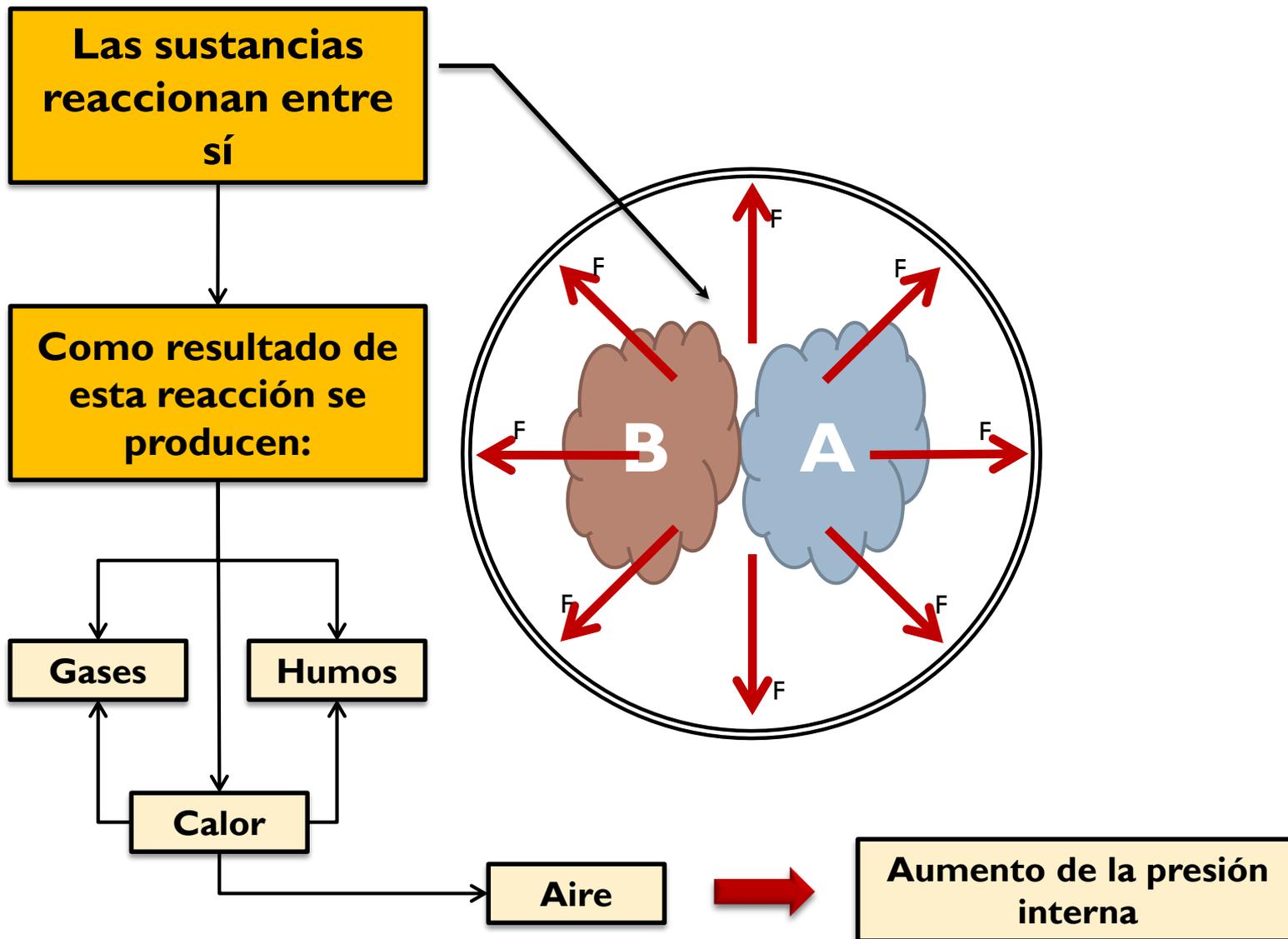


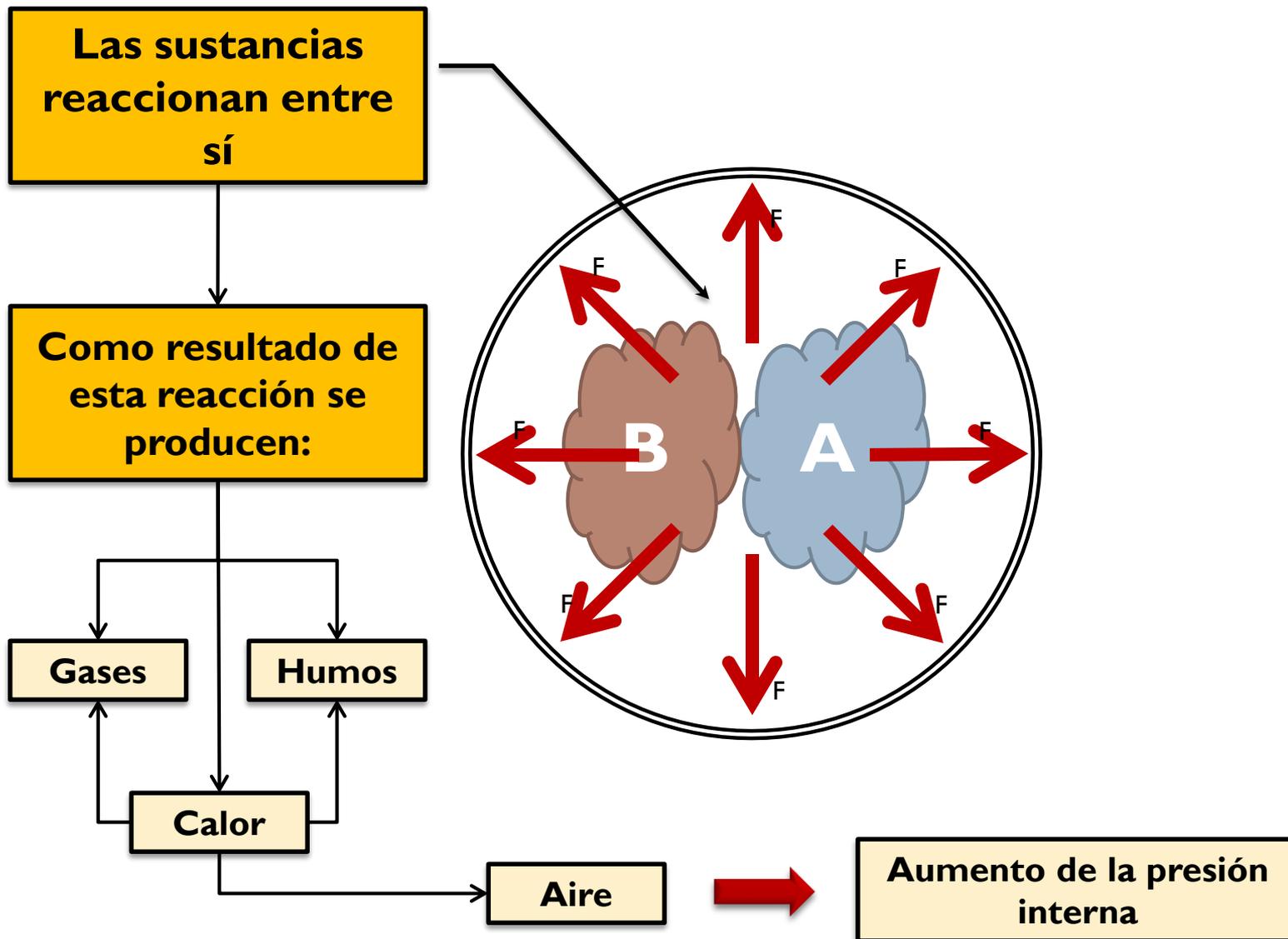
Aumenta

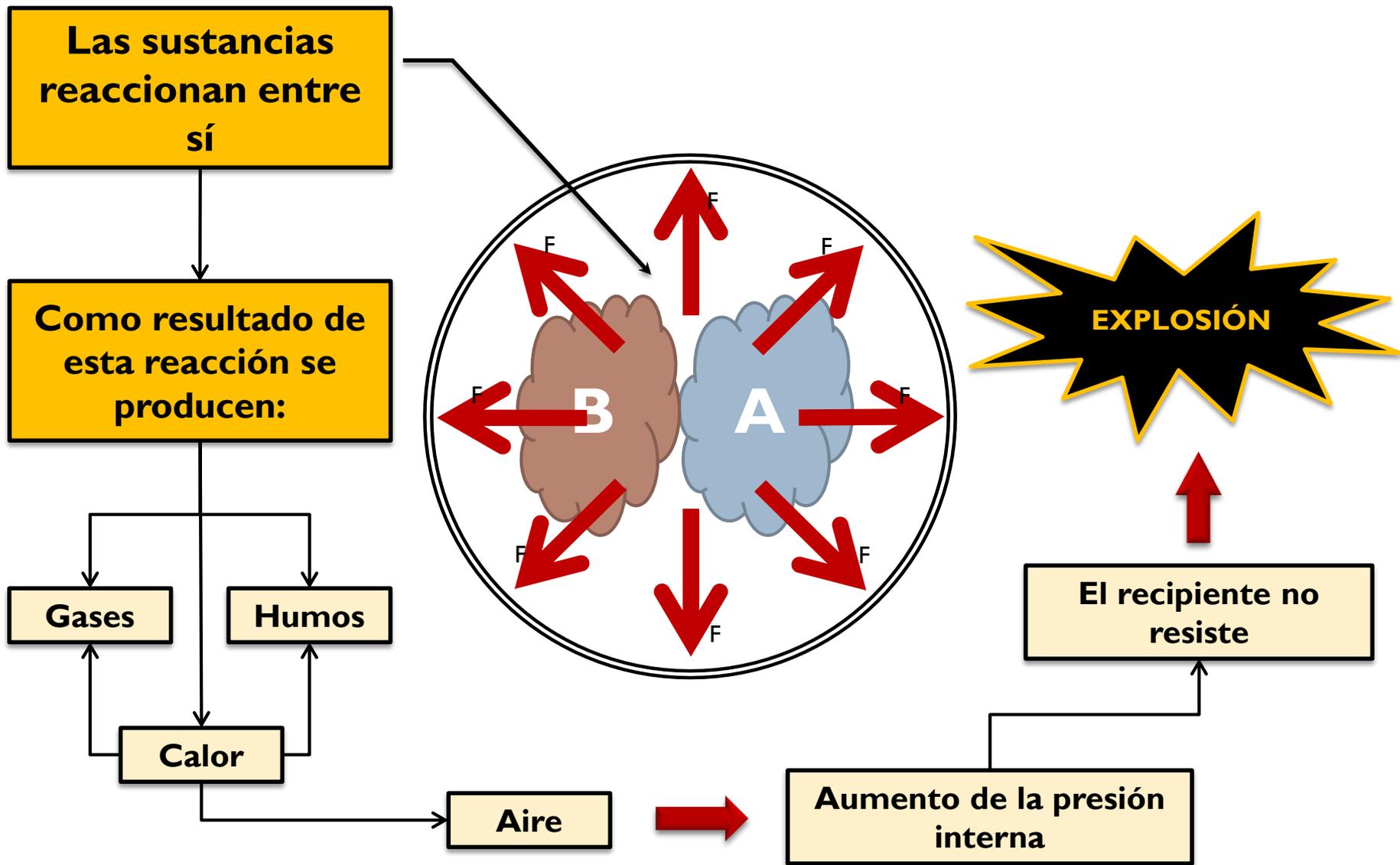


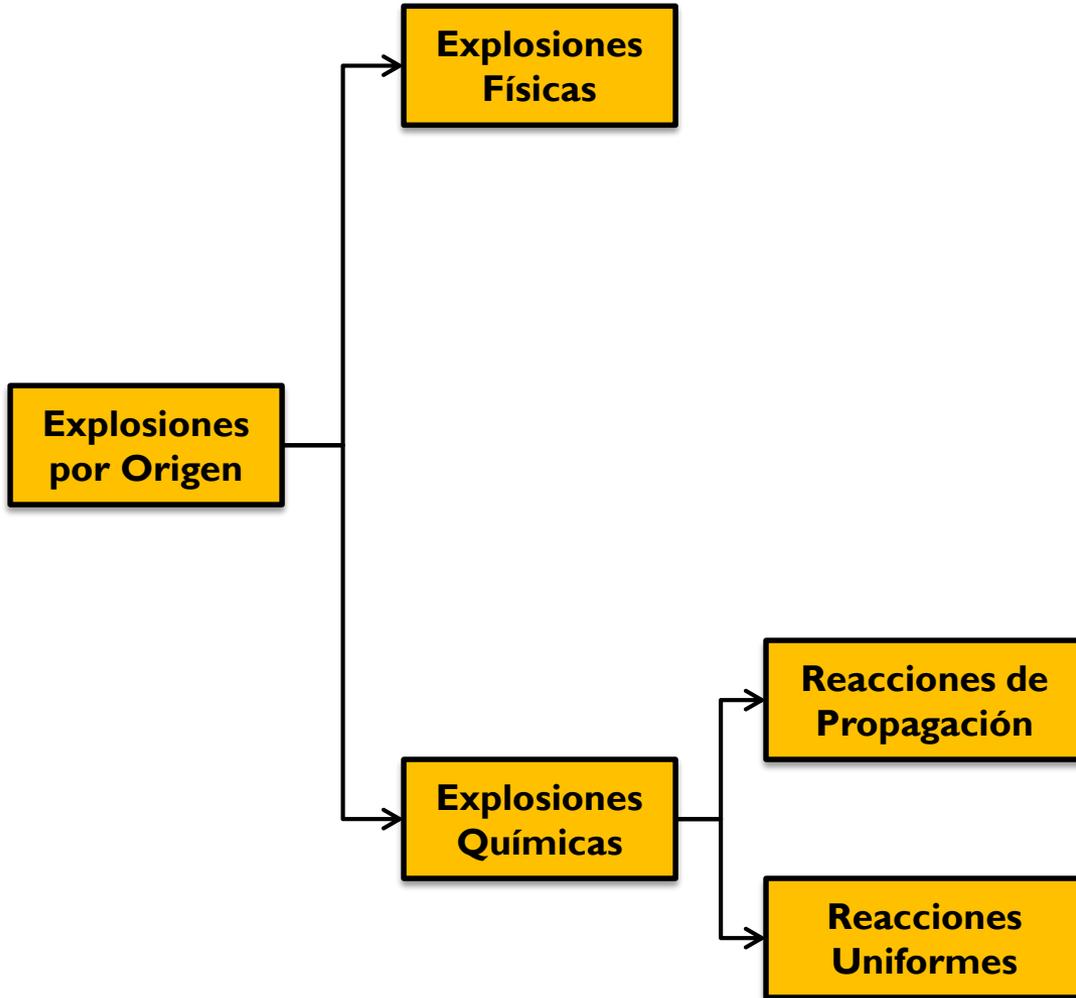
$$P V = n R T$$

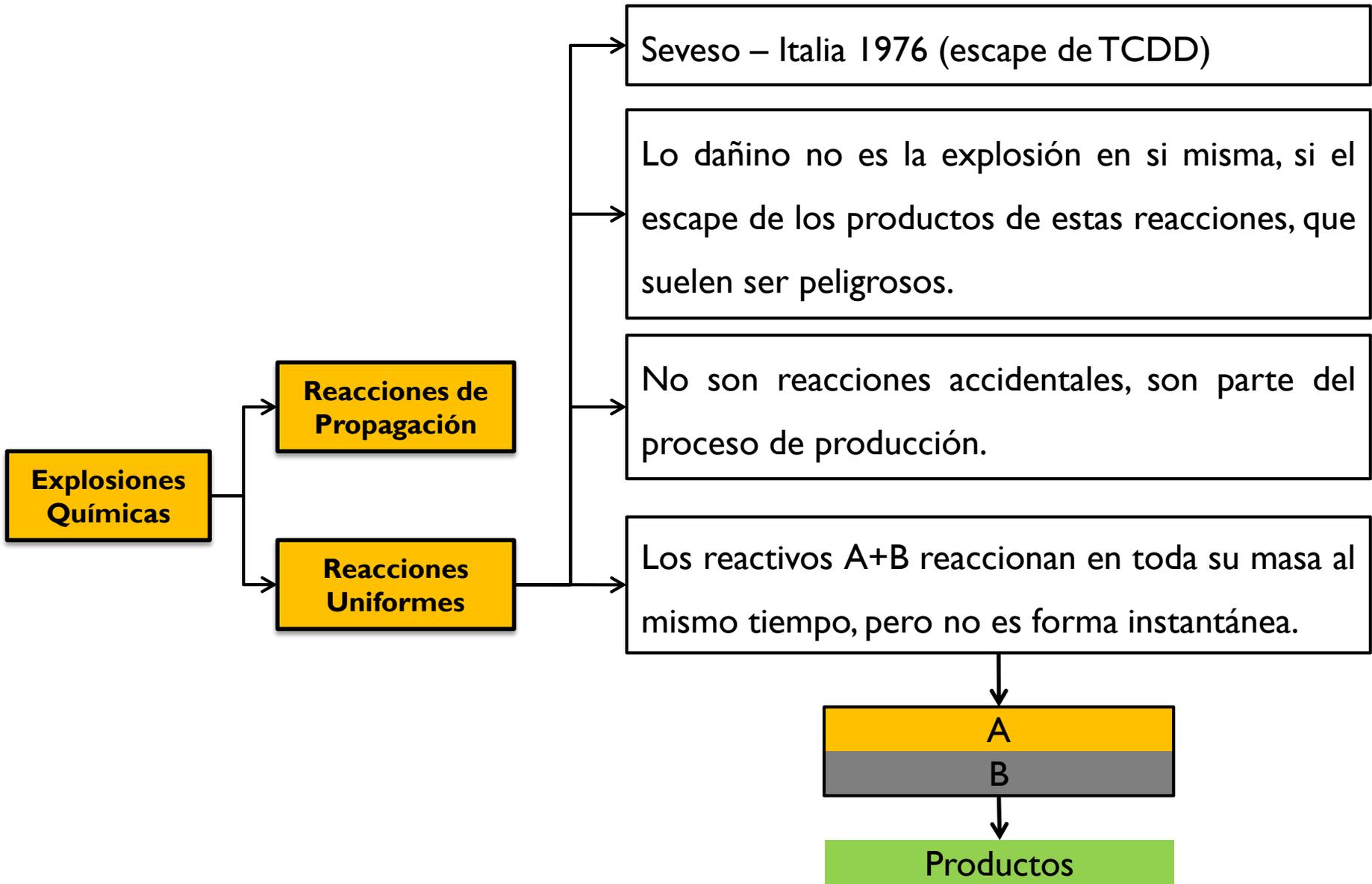












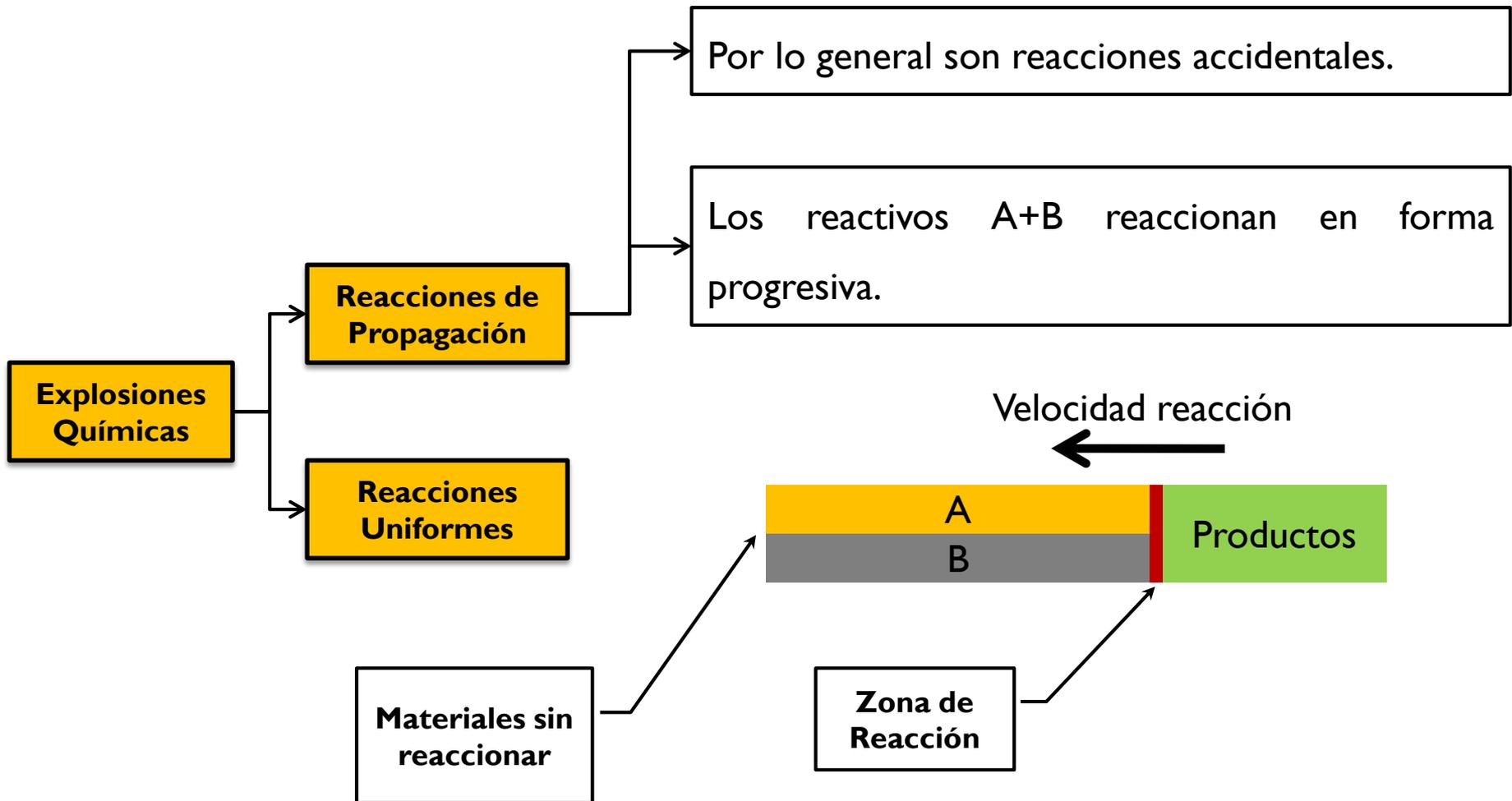
**Explosión. Escape de TCDD  
Icmesa Chemical Company - Seveso - Italia – 1976**

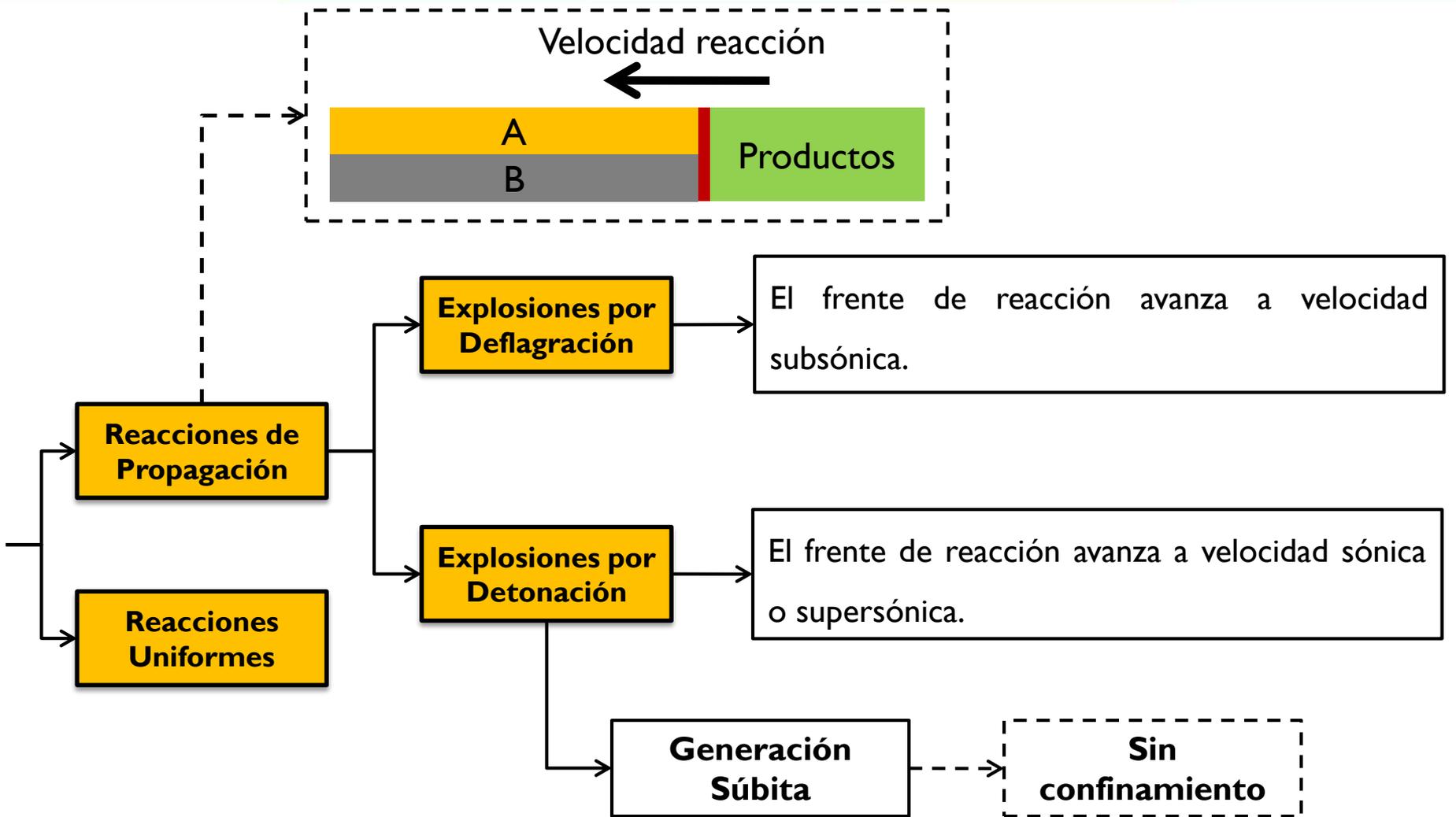


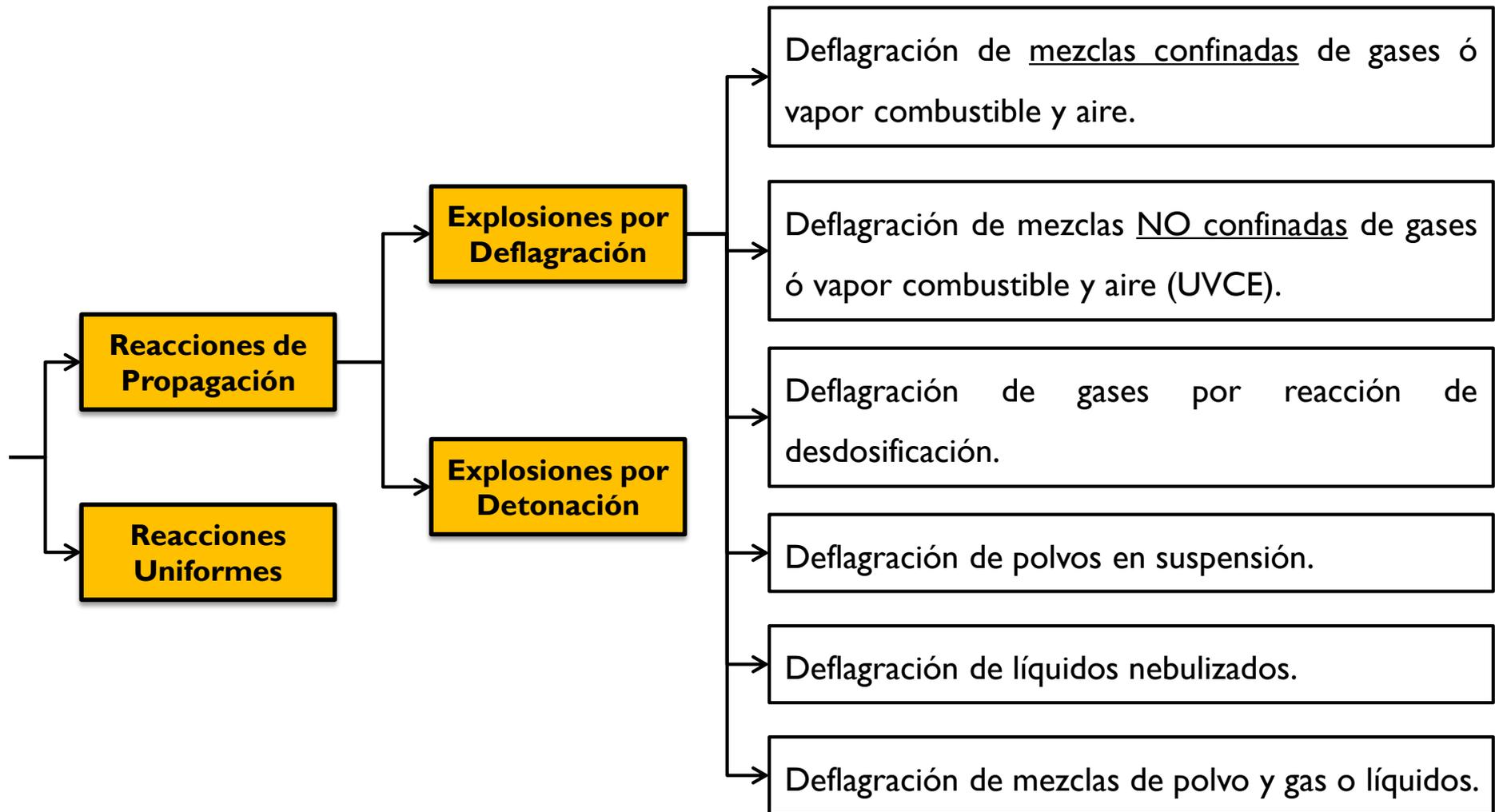












**Explosión de Azúcar en Polvo  
Imperial Sugar - Georgia – EEUU (2008)**

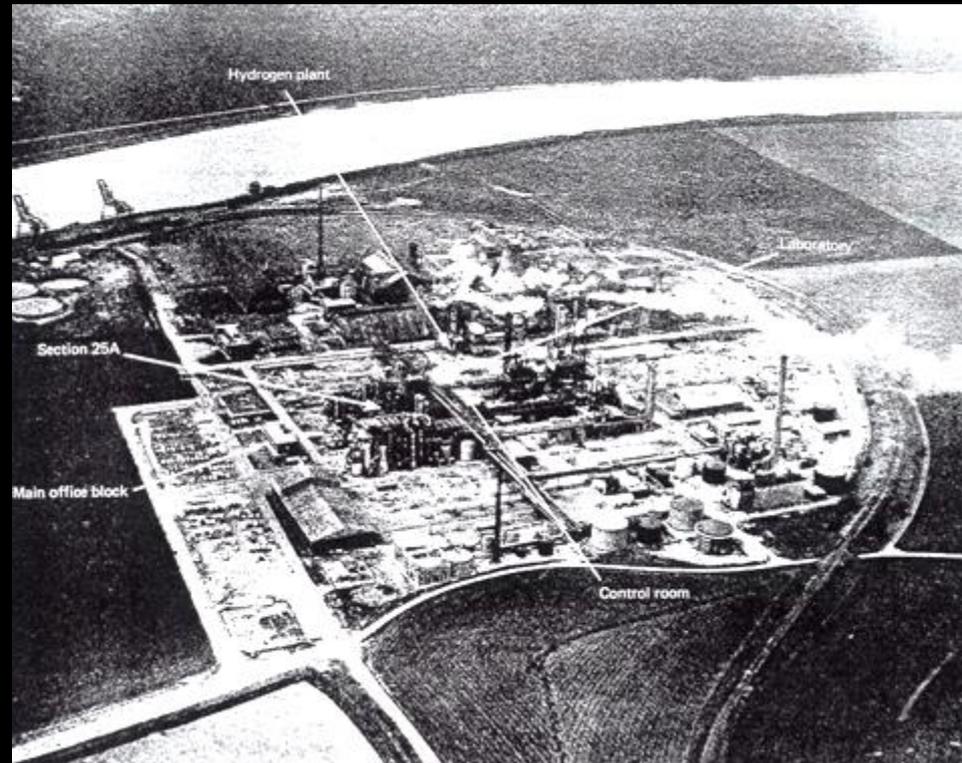


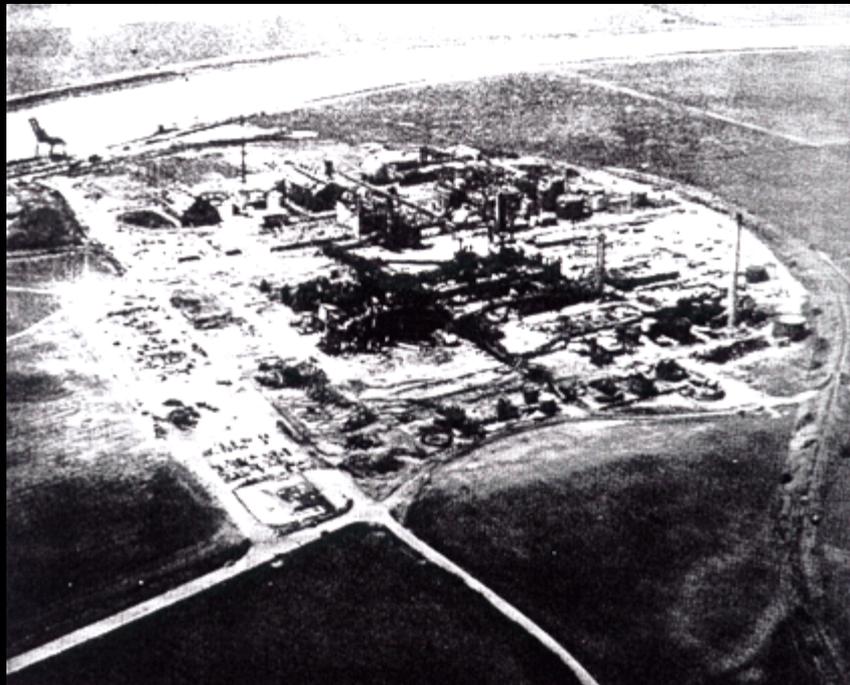




# Accidente de Flixborough, Reino Unido, 1974

## Explosión de vapor no confinada (UVCE)







FILXBOROUGH, 01.06.1974,  
UK



FLIXBOROUGH, 01.06.1974

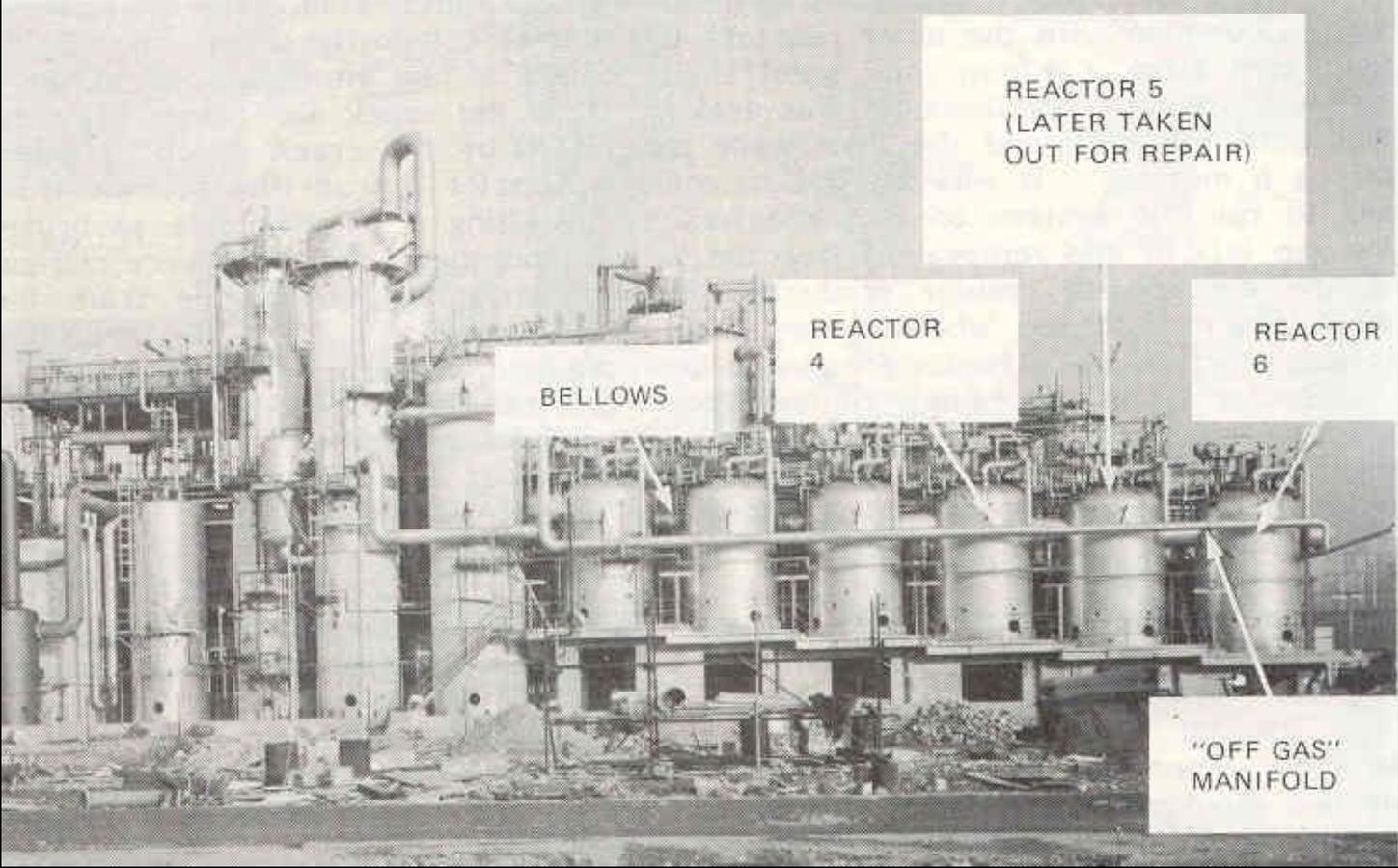
Destruction of control room

Section 25A

R 2525

Hydrogen plant





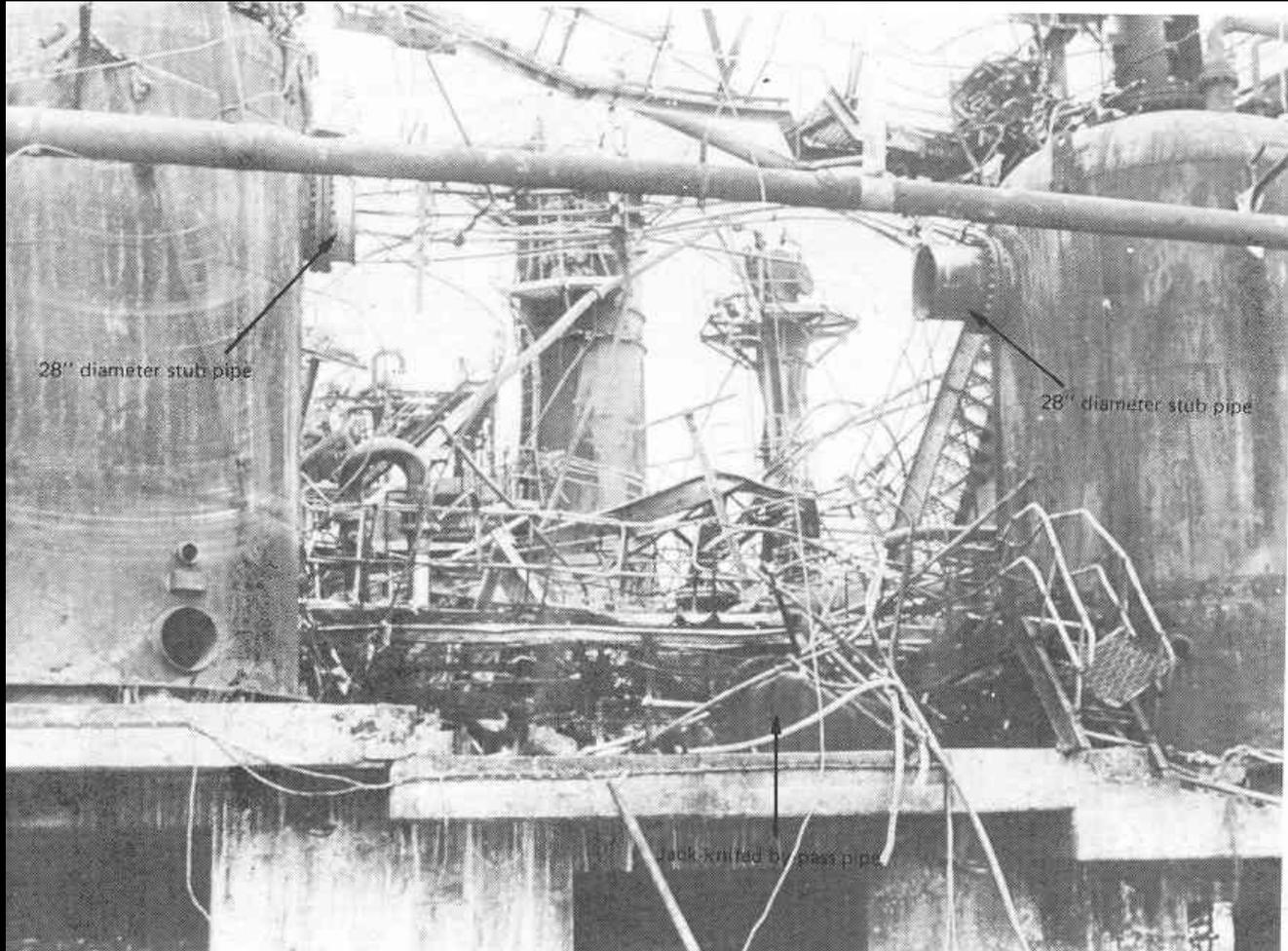
REACTOR 5  
(LATER TAKEN  
OUT FOR REPAIR)

REACTOR  
4

REACTOR  
6

BELLOWS

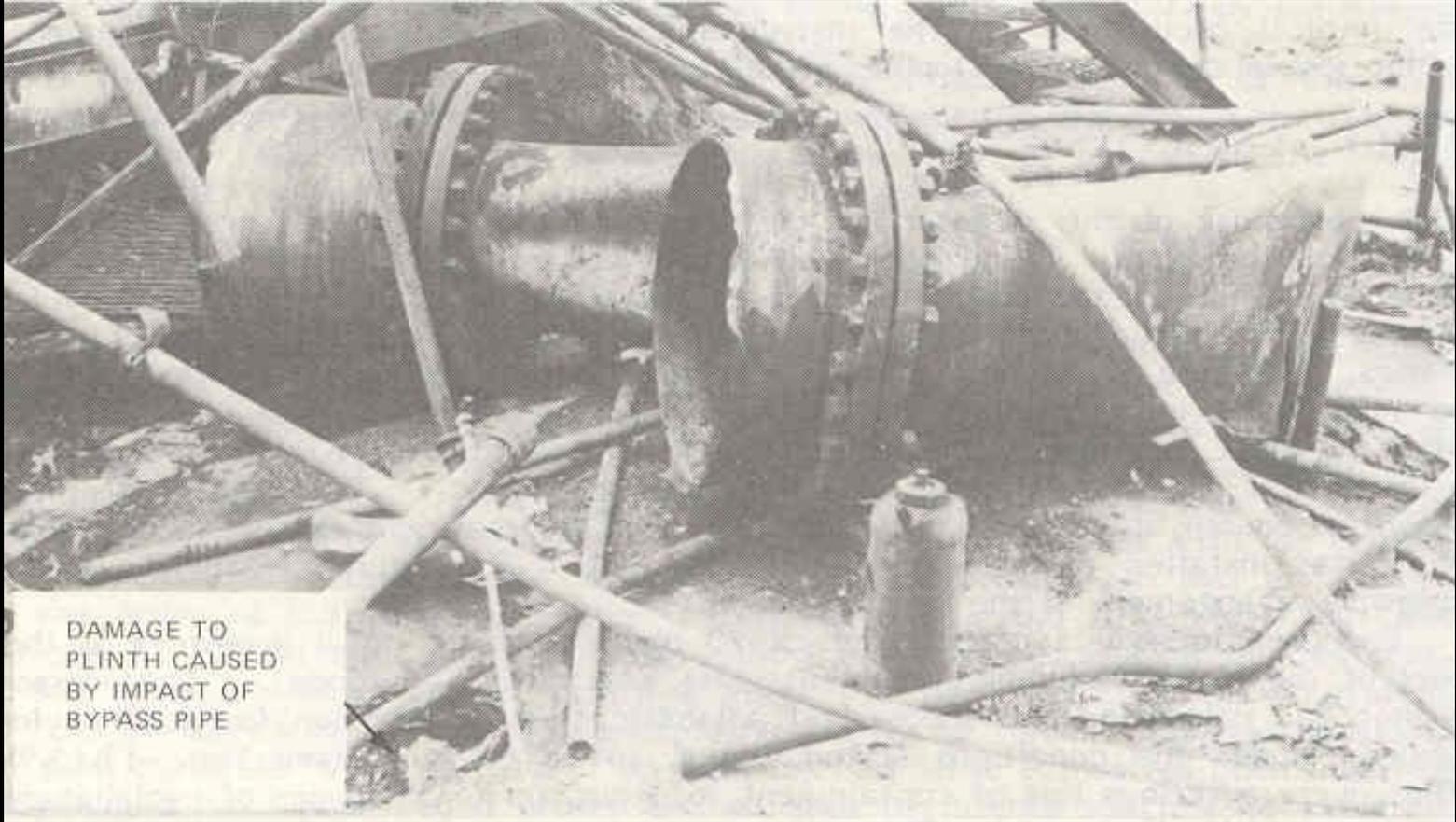
"OFF GAS"  
MANIFOLD



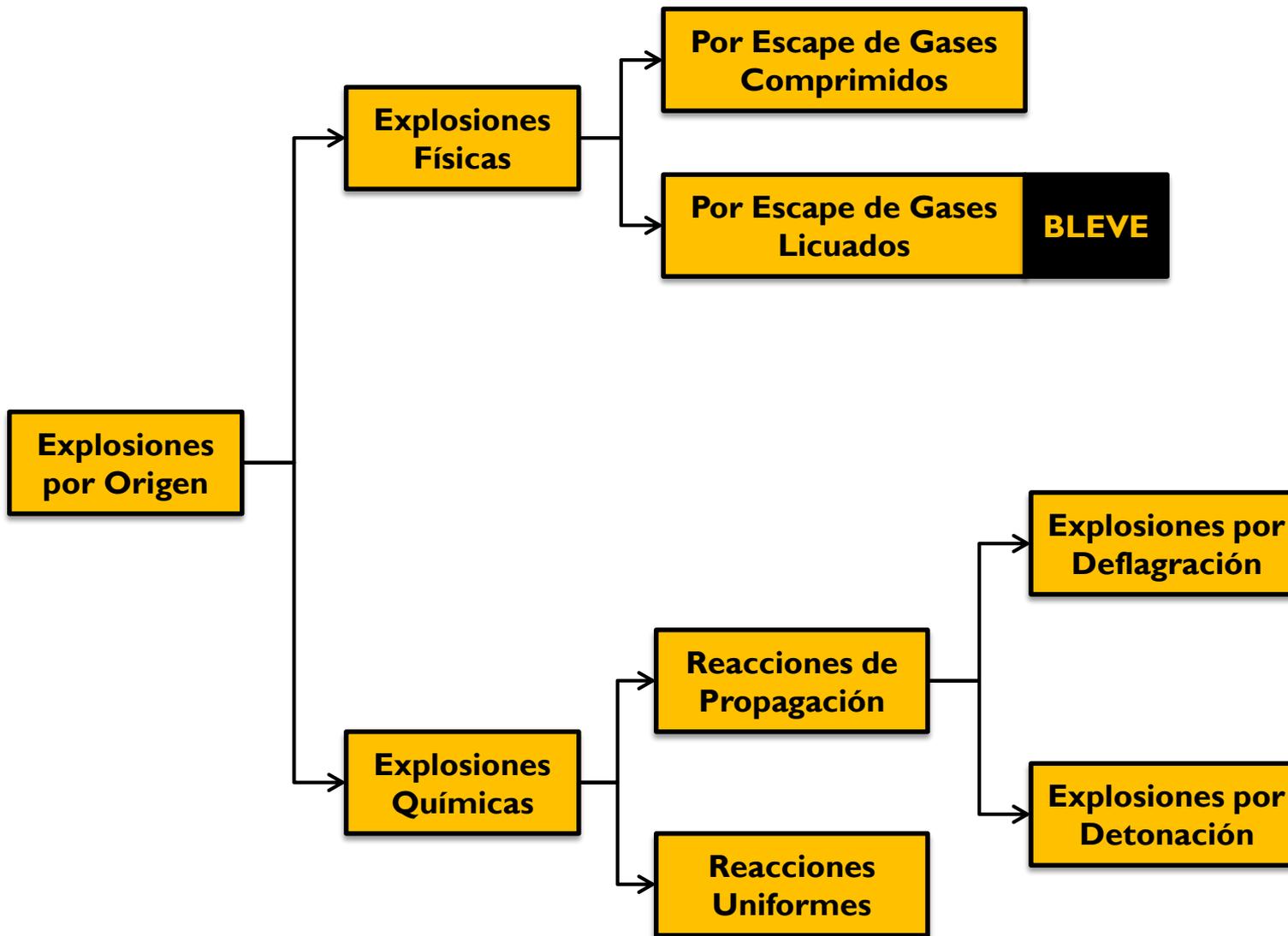
28" diameter stub pipe

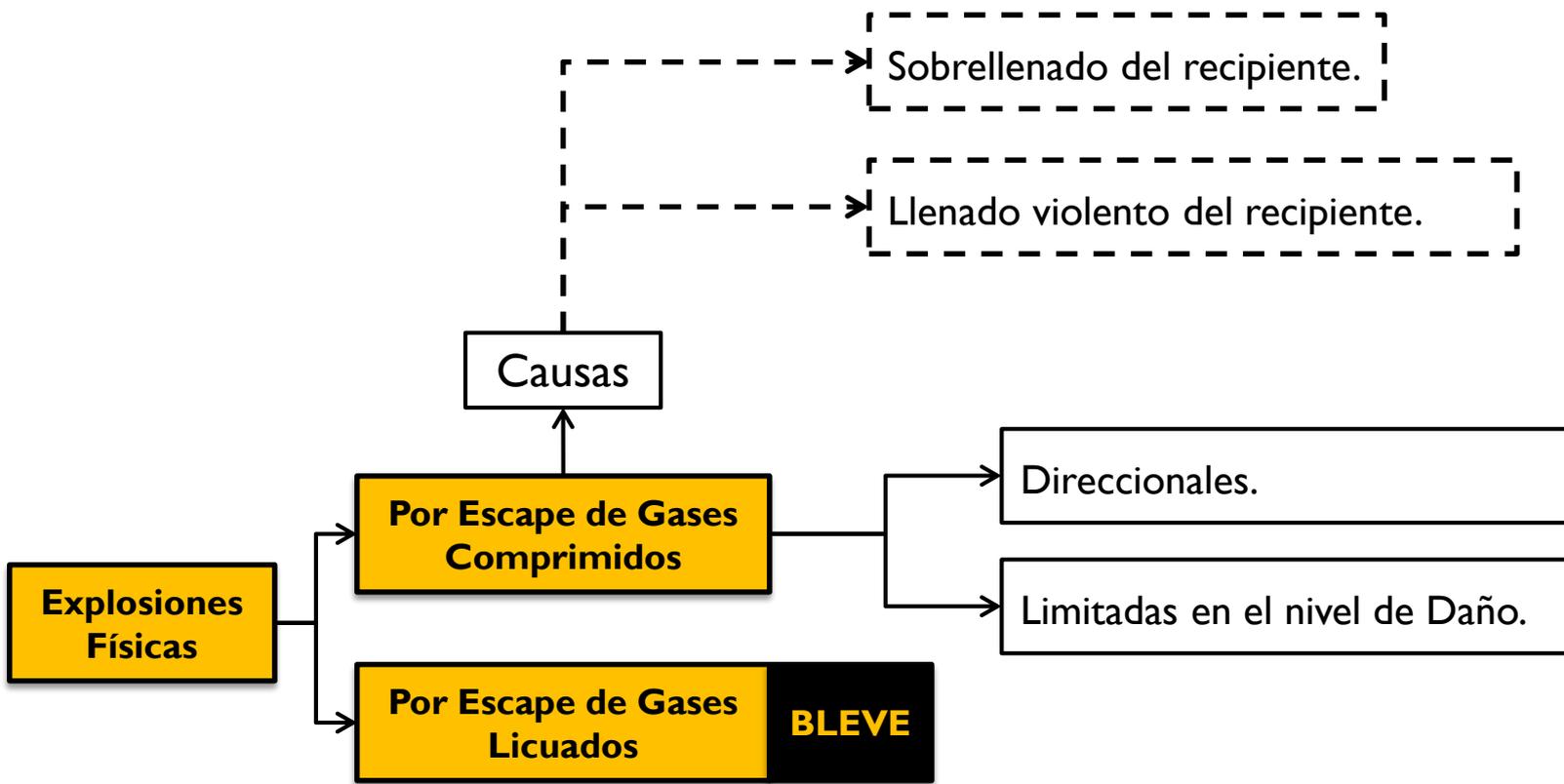
28" diameter stub pipe

back-knife by gas pipe



DAMAGE TO  
PLINTH CAUSED  
BY IMPACT OF  
BYPASS PIPE





# Explosión de Tanque de GNC







## Explosión de Carro Extintor

LA MITAD DEL EXTINTOR  
NO SE ENCONTRO.

30 11:06 PM





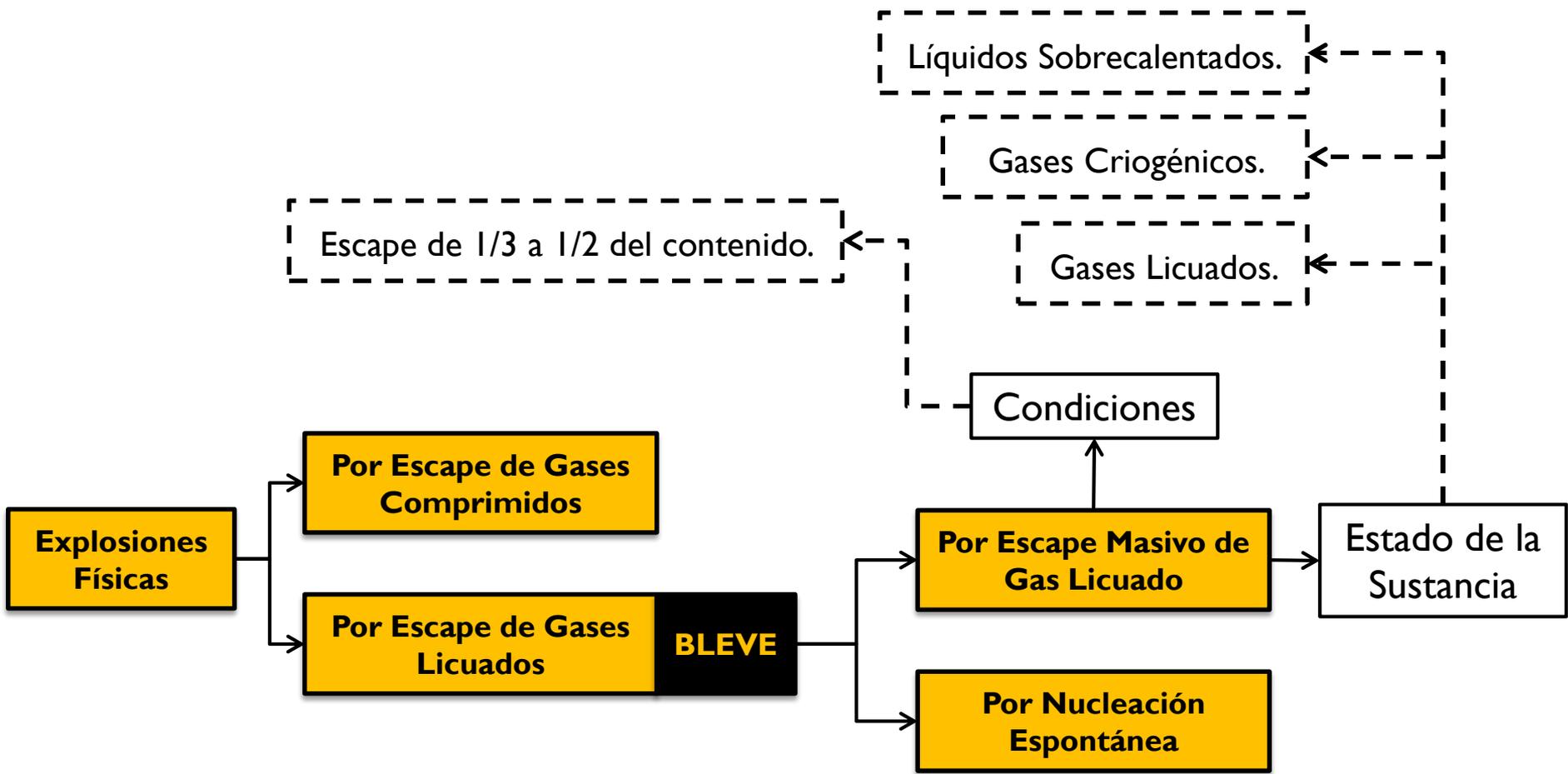
30 11:03 PM



**CILINDRO SIN  
NITROGENO CON  
REGULADOR**

**CILINDRO UTILIZADO  
DURANTE EL TRABAJO  
SIN REGUARDOR**

**30 11:01 PM**



Explosiones Físicas

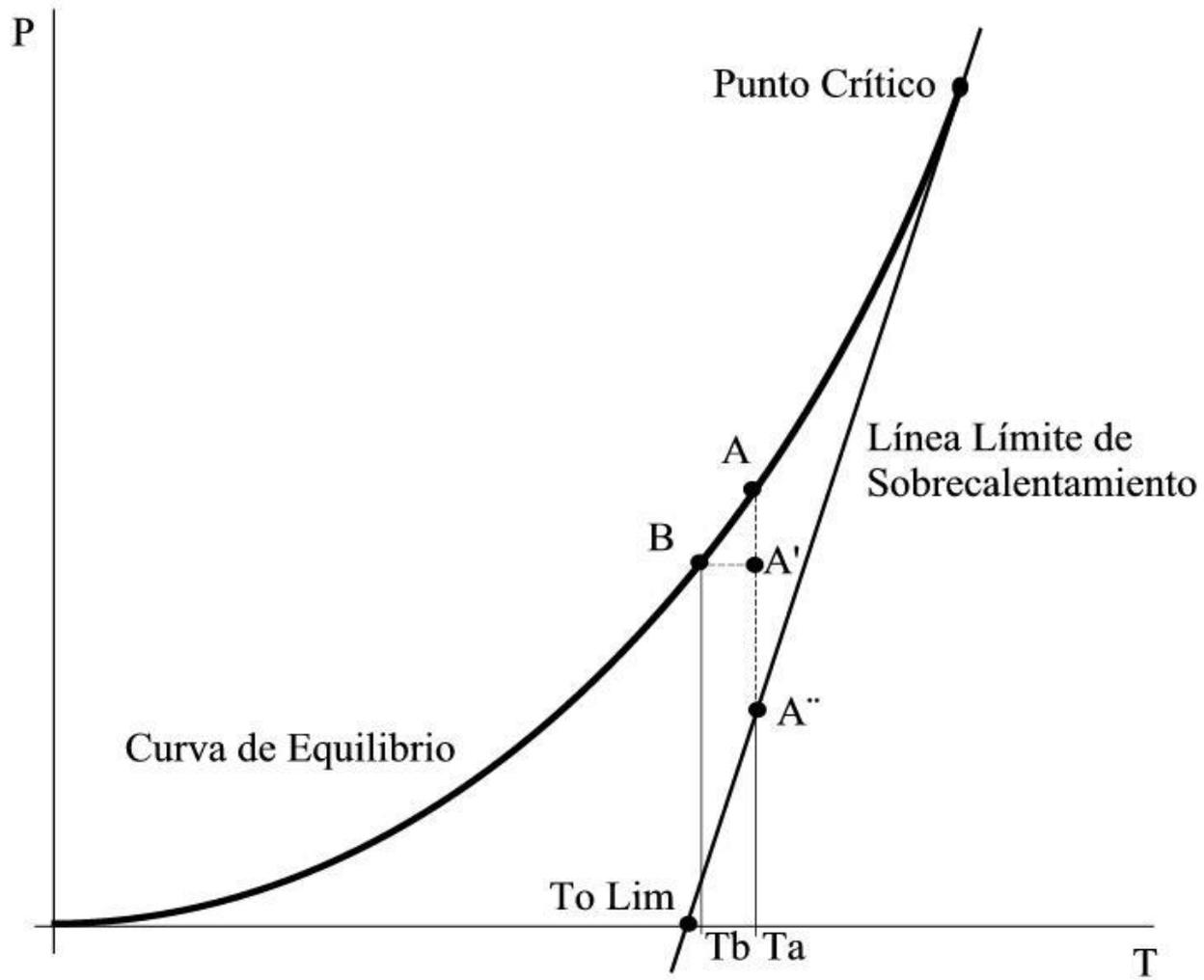
Por Escape de Gases Licuados **BLEVE**

Por Nucleación Espontánea

Condiciones

TODA la masa de gas licuado HIERVE en forma instantánea.

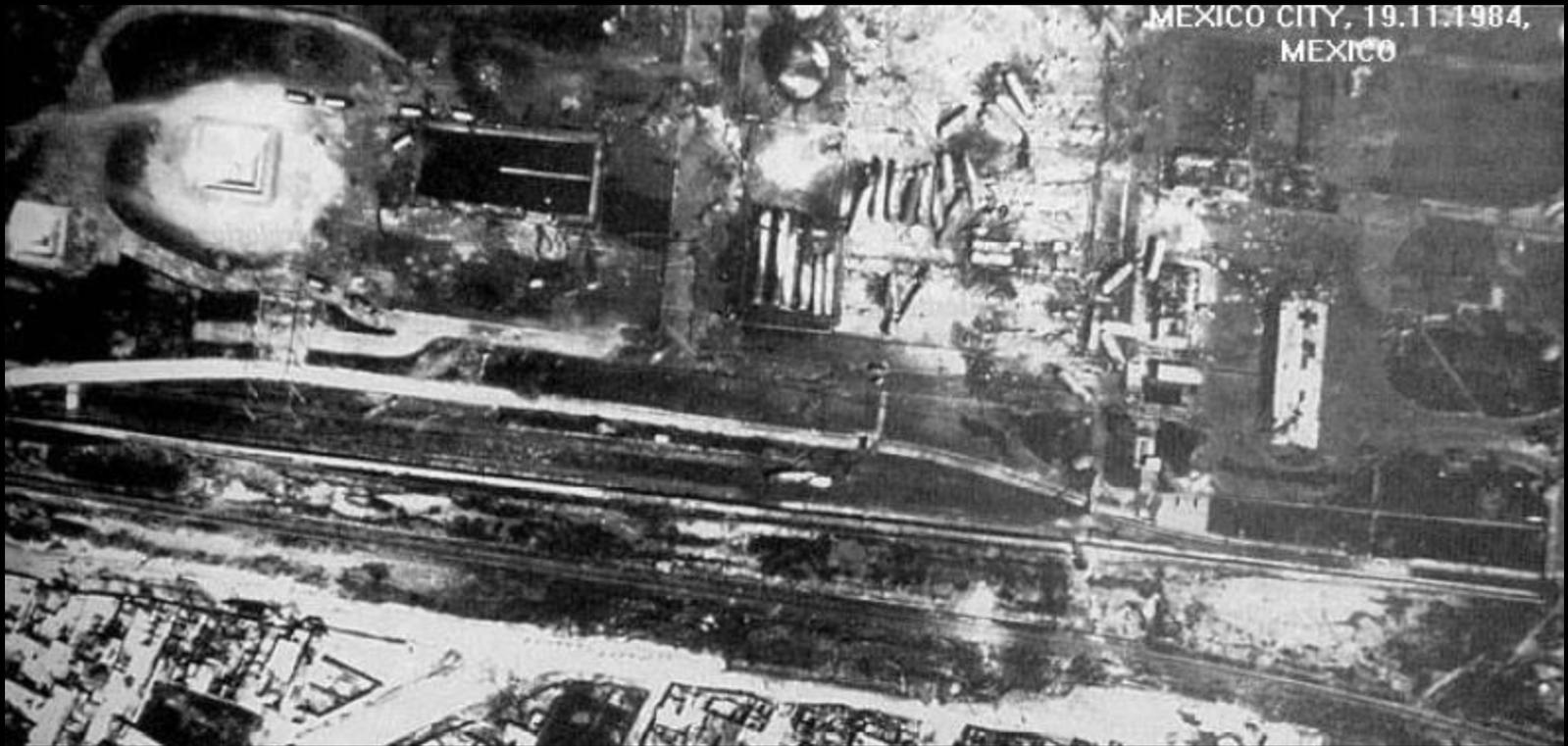
Despresurización violenta. Que puede suceder con el recipiente sano.



**BLEVE - San Juan de Ixhuatepec – México, 1984**



MEXICO CITY, 19.11.1984,  
MEXICO





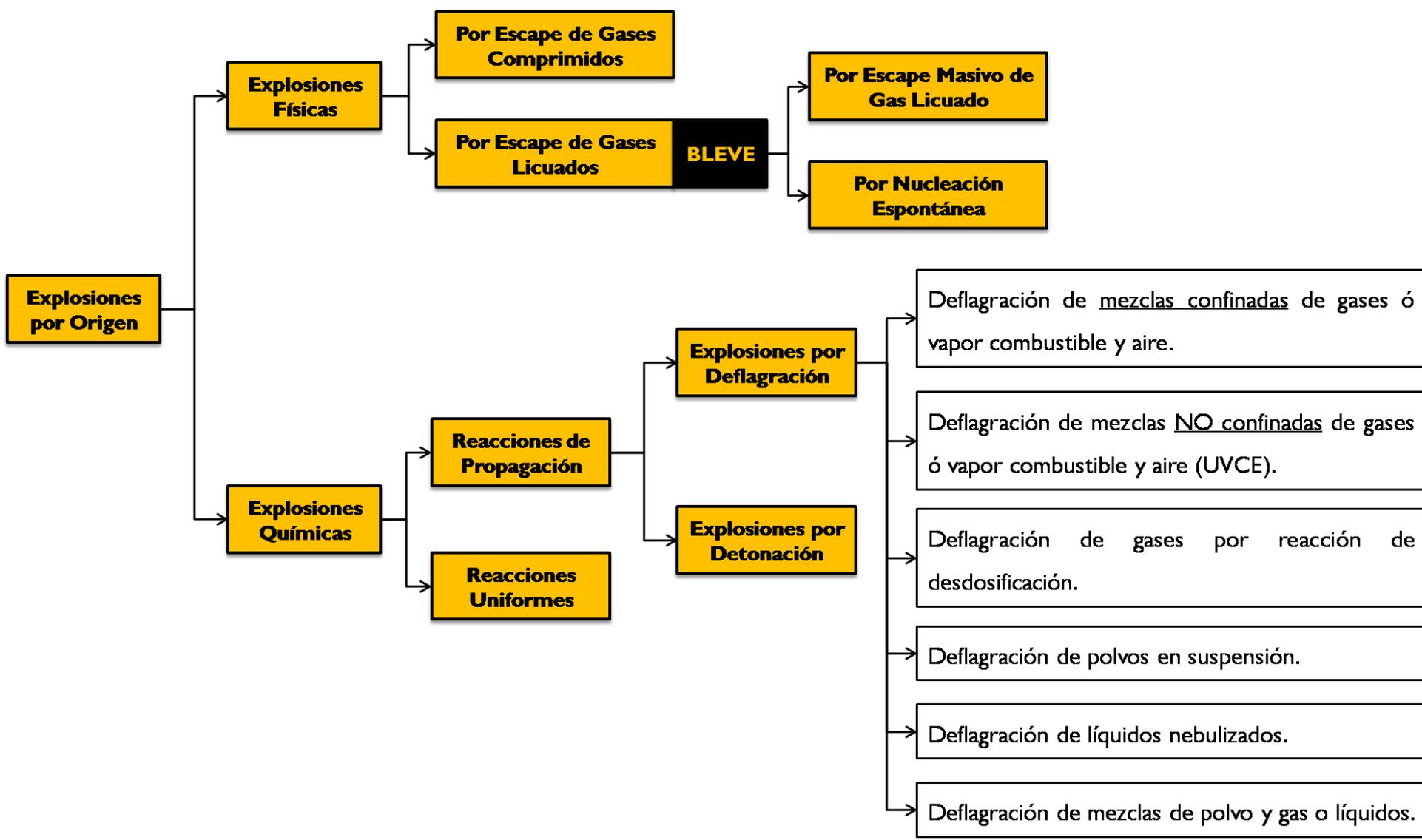


MEXICO CITY, 19.11.1984.  
MEXICO



MEXICO CITY, 19.11.1984,  
MEXICO







Fin