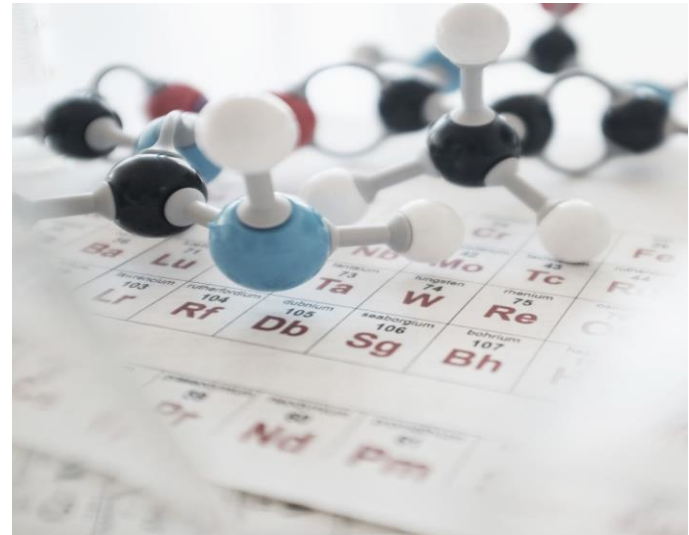


# ISO CHEMICALS

The past, the present & the future of the flame retardants and additives for XPS & EPS

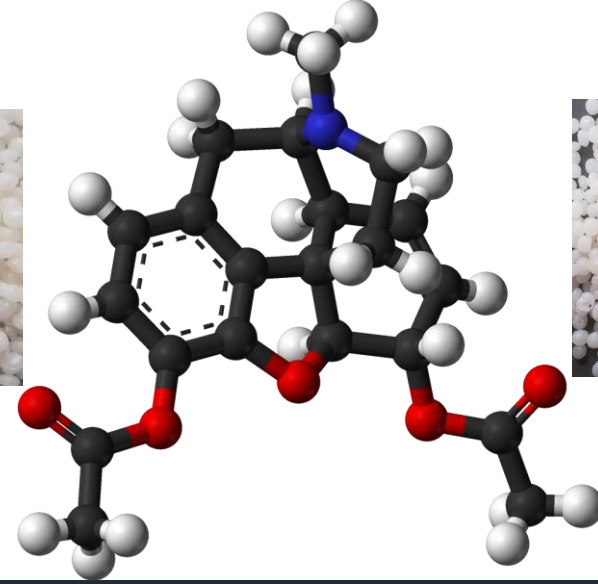
XPS ve EPS için alev geciktiricilerin ve katkı maddelerinin geçmişi, bugünü ve geleceği



Global player for expandable polymers

# ISOCHEMICALS

*The past, the present &  
the future of the flame  
retardants and  
additives for XPS & EPS*



## ISOCHEMICALS ŞİRKETİMİZ

Isochemicals, Sacme Group'un bir parçası olarak 2007 yılında kurulmuştur.

İtalya'nın kuzey doğusunda, Venedik'e yakın Malo'da (Vicenza) bulunan bir İtalyan şirketiyiz.

Isochemicals, XPS ve EPS için katkı maddelerinin üretimine ve bunların dünya çapında ticarileştirilmesine odaklanmıştır.

Ar-Ge, yeni ürün geliştirme ve yenilikler temel itici güçlerimizdir

Aynı zamanda EPS granül Distribütörüyüz (İtalya için CFN KİMYA, Avrupa ve Türkiye için Total Energies)



# ISOCHEMICALS

The past, the present & the future of the flame retardants and additives for XPS & EPS



ISO-CHEMICALS

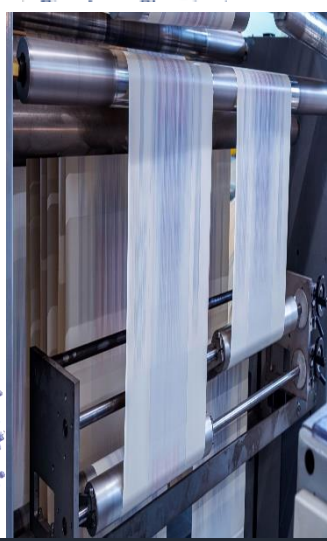


SACME

DIMAP



CRINPACK



# SACME GROUP

SACME ISO-CHEMICALS DIMAP CRINPACK

Global players in plastic material

**GRINPACK**  
Biopolymer Shopping & Garbage Bags.  
Professional

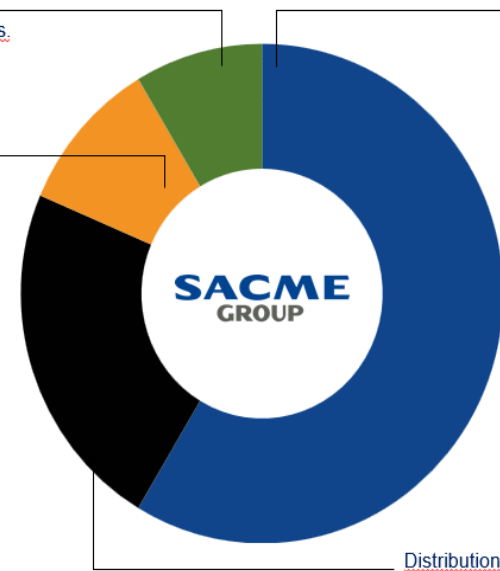
**ISO-CHEMICALS**  
Expandable Polymers additives  
EPS Distribution

**ISO-CHEMICALS**  
KIMVA A.Ş.  
Isochemicals branch for Turkey & Middle East

**SACME**  
HPP DIV: House & Professional products

**TRADING DIV:** Distribution of Commodities and Technopolymers

**COMPOUND DIV:** technopolymer modification with customized solutions



**DIMAP**

Distribution of Commodities and Technopolymers

# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



ISO-CHEMICALS

SACME

DIMAP

GRINPACK



## OUR GROUP CERTIFICATIONS

**SACME**

**NEW**

**RINA**  
CERTIFIED MANAGEMENT SYSTEM  
ISO 9001 - ISO 14001  
BS OHSAS 18001 - SA 8000

**OK compost**  
**TÜV AUSTRIA**  
INDUSTRIAL  
S6195

**HOME OK compost**  
**TÜV AUSTRIA**  
HOME  
S6195

**IFS HPC**

**compostable 7P2194**

**CSI**  
HIGH-PERFORMANCE BAG  
EN 13430-2017  
INDUSTRIAL

**CSI**  
HIGH-PERFORMANCE BAG  
EN 13430-2017  
HOME

**CSI**  
HIGH-PERFORMANCE BAG  
EN 13430-2017  
HOME

**ISO-CHEMICALS**

**NEW**

**BRONZE 2023 ecovadis**  
Sustainability Rating

**RINA**  
Member of CIBQ Federation  
CERTIFIED MANAGEMENT SYSTEM  
ISO 9001

**GRINPACK**

Member of CIBQ Federation

**RINA**  
CERTIFIED MANAGEMENT SYSTEM  
ISO 9001

**OK compost**  
**TÜV AUSTRIA**  
INDUSTRIAL  
S6283

**DIMAP**

Member of CIBQ Federation

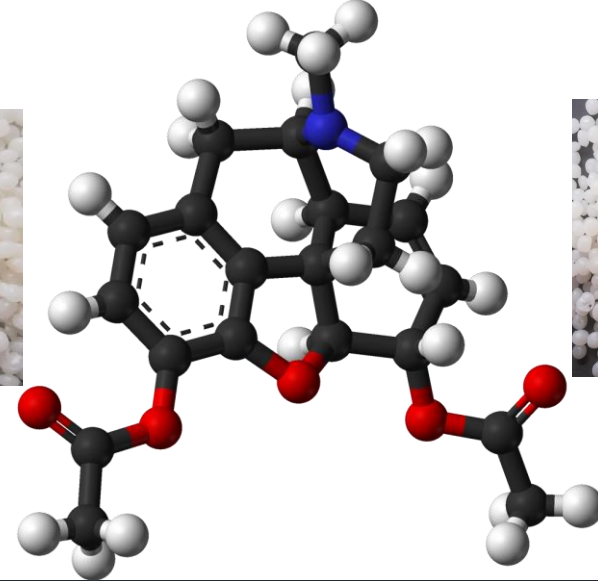
**RINA**  
CERTIFIED MANAGEMENT SYSTEM  
BS OHSAS 18001

Member of CIBQ Federation

**RINA**  
CERTIFIED MANAGEMENT SYSTEM  
ISO 9001

# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



# ISO-CHEMICALS

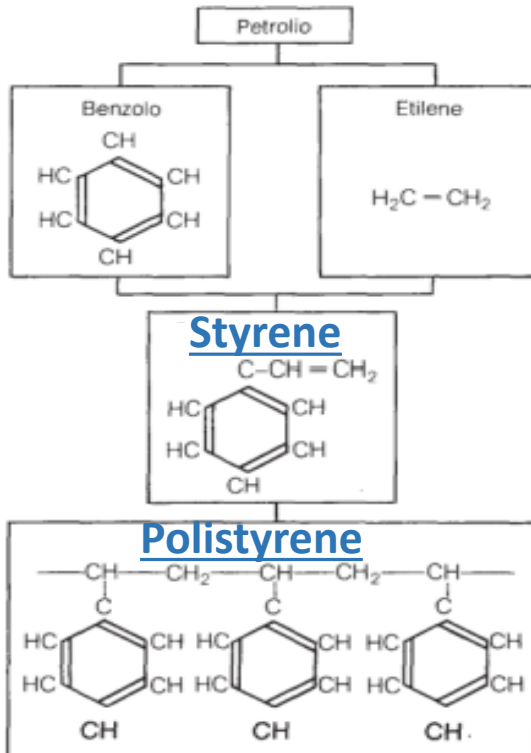
Distribute EPS Granules for:



Italy

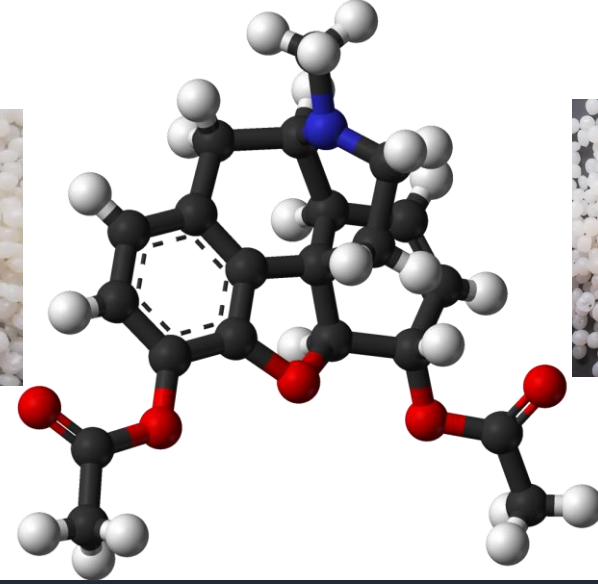


East & West Europe



# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



HBCD



Halogen  
Free

## HBCD nedir?

HBCD veya HBCDD (Hexabromocyclododecan,  $C_{12}H_{18}Br_6$ ), tekstil ve mobilye döşemelerinde kullanılan bromlu bir alev geciktiricidir. Birincil uygulaması, ısı yalıtımı olarak kullanılan ekstrüde - XPS - veya genişletilmiş - EPS - polistiren köpüktür.

## HBCD'nin toksisitesi ve çevreye zararı

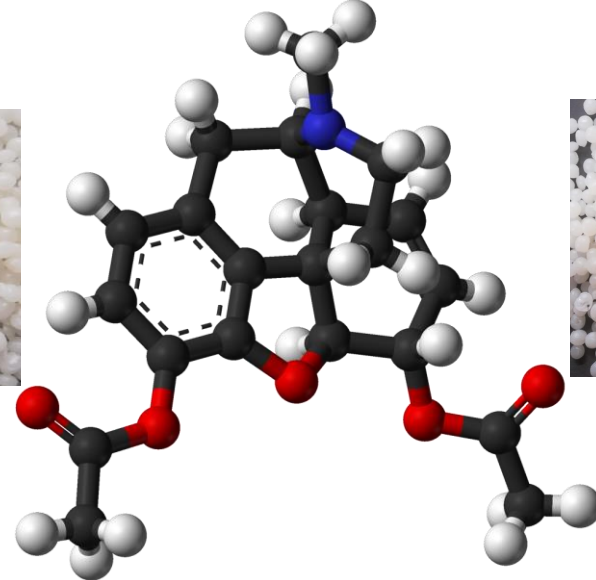
HBCD çevreye zararlıdır çünkü kalıcıdır ve aynı zamanda organizmada birikir, yani biyo-birikimlidir (Bio-accumulative). ve repro-toksik özelliklere sahiptir. KOK'lar olarak adlandırılan kalıcı organik kirleticiler arasında yer almaktadır.\*Source

<https://polludoc.ch/it/materiale/hbcd>

\* Source <https://www.crb-gmbh.com/it/newspost/informazioni-hbcd>

# ISO-CHEMICALS

The past, the present & the future of the flame retardants and additives for XPS & EPS



## HBCD'YE İLİŞKİN ECHA (EU KİMYA AJANSI) DEKLARASYONU

<https://echa.europa.eu/substance-information/>

### SECTION 12: Ecological information

#### 12.1 Toxicity

Aquatic toxicity: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

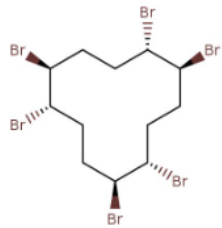


#### Substance identity

EC / List no.: 247-148-4

CAS no.: 25637-99-4

Mol. formula: C<sub>12</sub>H<sub>18</sub>Br<sub>6</sub>



#### Hazard classification & labelling



**Warning!** According to the **harmonised classification and labelling** (ATP03) approved by the European Union, this substance is suspected of damaging fertility or the unborn child and may cause harm to breast-fed children.

#### Properties of concern



Suspected to be Toxic to Reproduction



Persistent, Bioaccumulative and Toxic



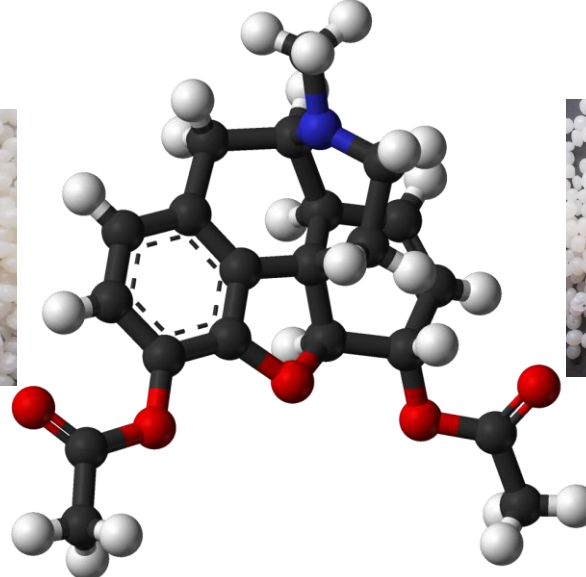
Persistent Organic Pollutant

[More details](#)

#### Important to know

# ISO-CHEMICALS

The past, the present & the future of the flame retardants and additives for XPS & EPS



# Halogen Free

## HBCD

**PRODUCT:** Hexabromocyclododecane (C<sub>12</sub>H<sub>18</sub>Br<sub>6</sub>)  
**CODE:** HBCD  
**DESCRIPTION:** Flame retardant active for PS system

### CHARACTERISTICS

HBCD	ASPECT/COLOUR	WHITE GRANULAR
	PURITY (%)	>= 97,5%
	BROMINE CONTENT (%)	>= 73
	MELTING POINT (°C)	>= 180
	VOLATILES (%)	≤ 0,5

Labelling (67/548/EEC or 1999/45/EC)



Xi

irritant



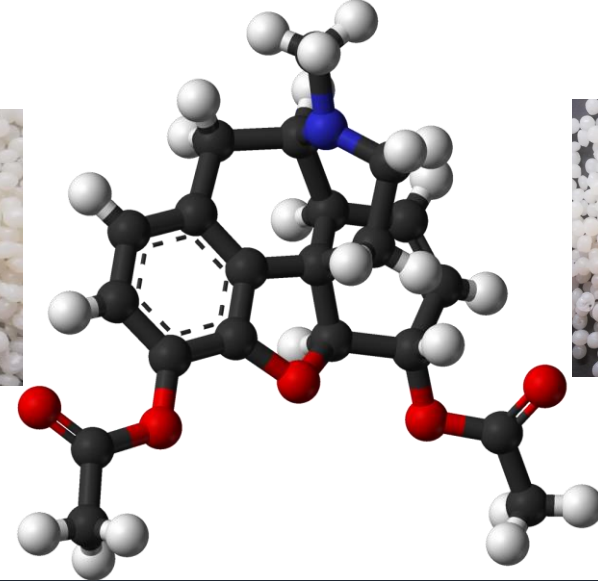
N

dangerous for the environment



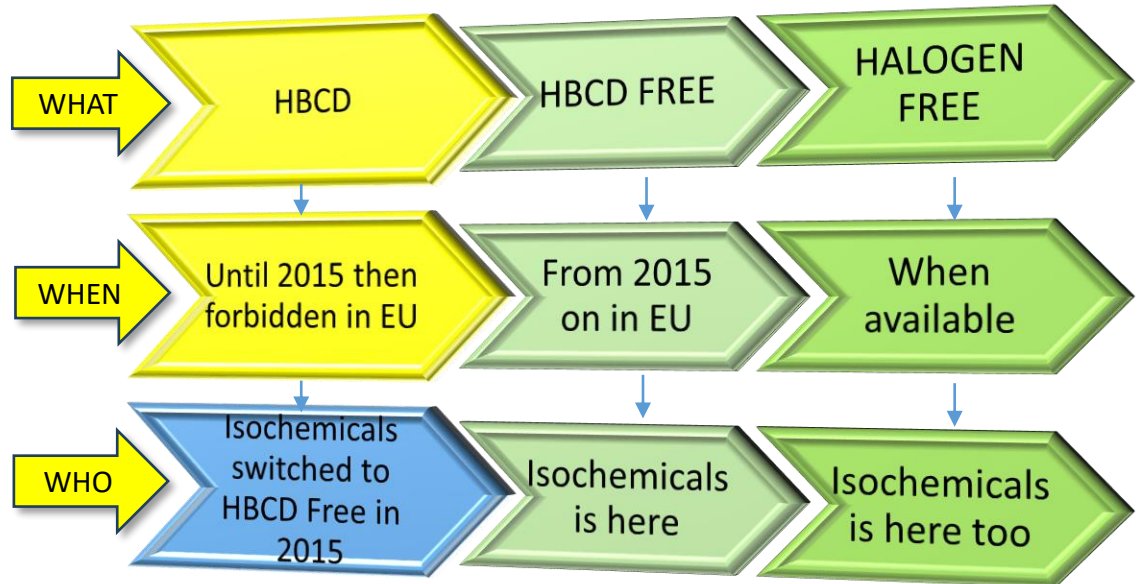
# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



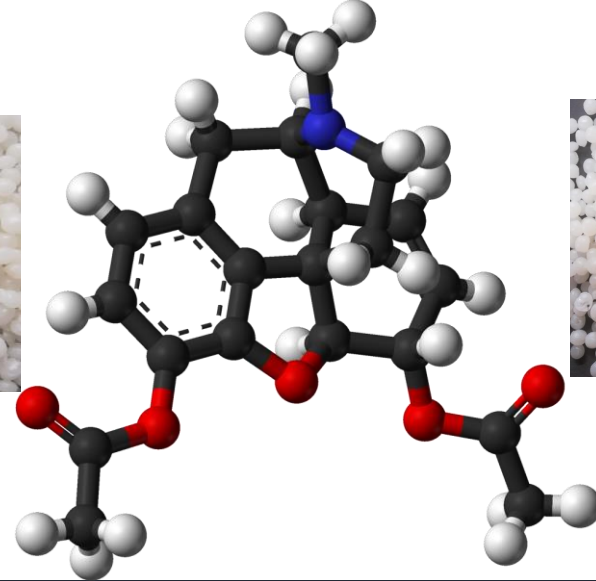
# Halogen Free

## From HBCD to Halogen Free



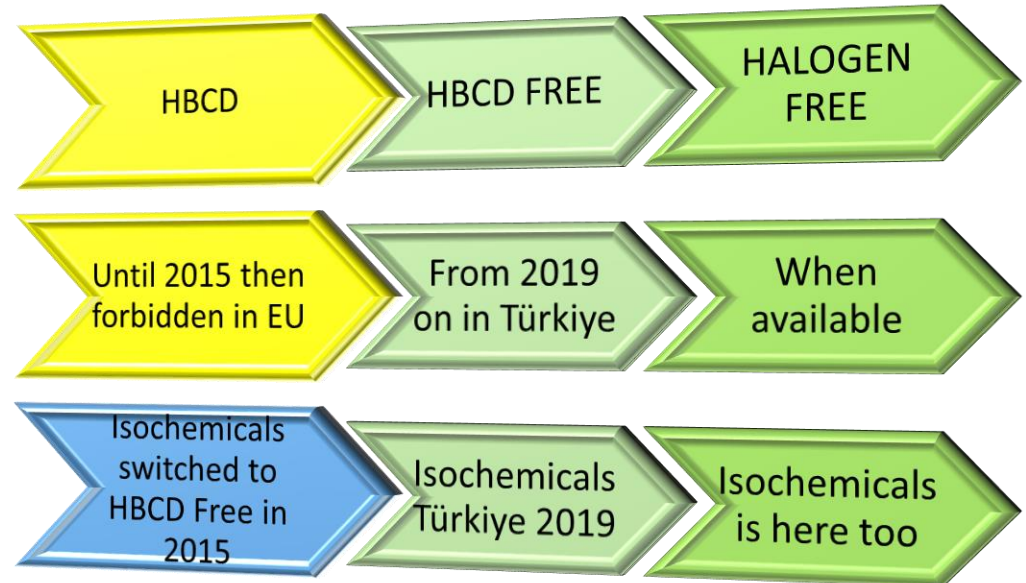
# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



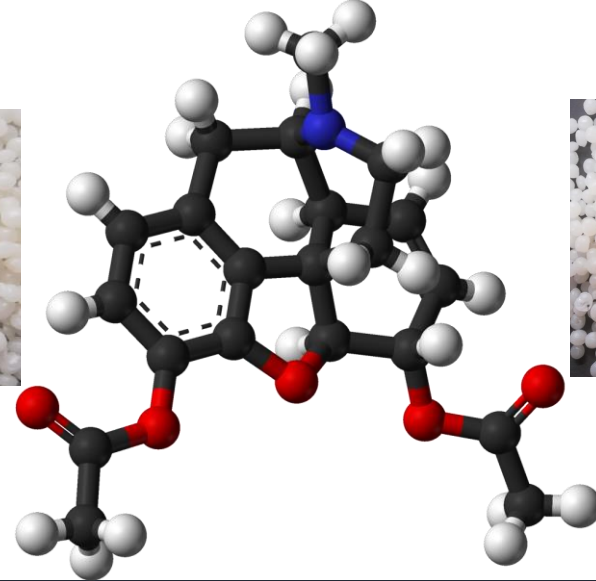
**Halogen Free**

## HBCD in Türkiye

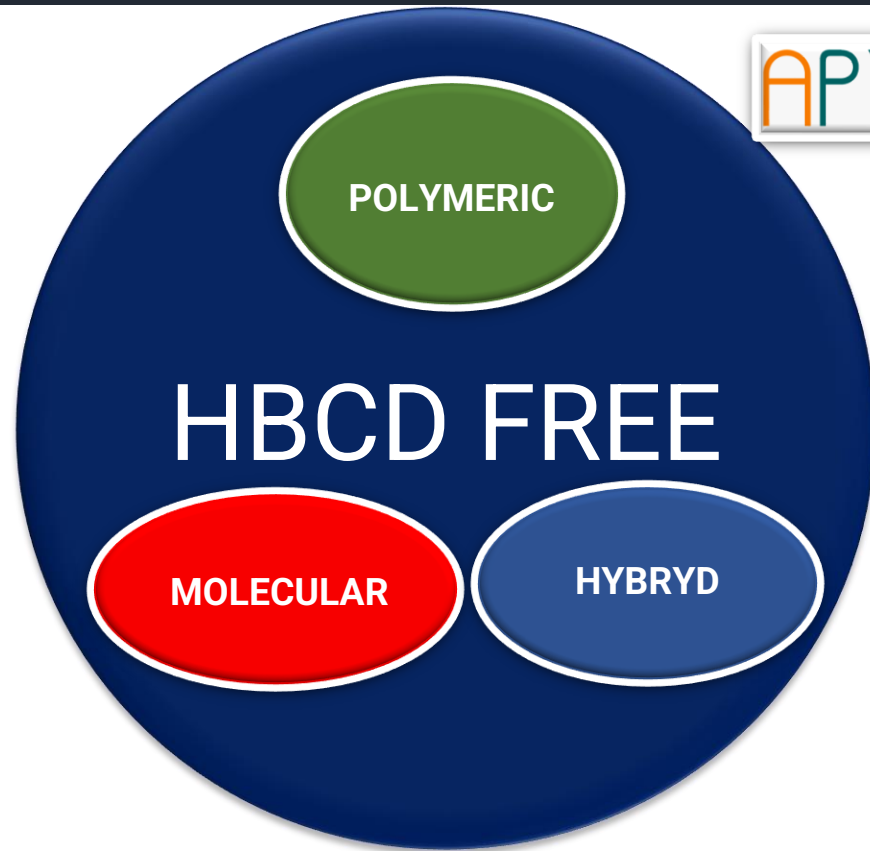


# ISO-CHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*

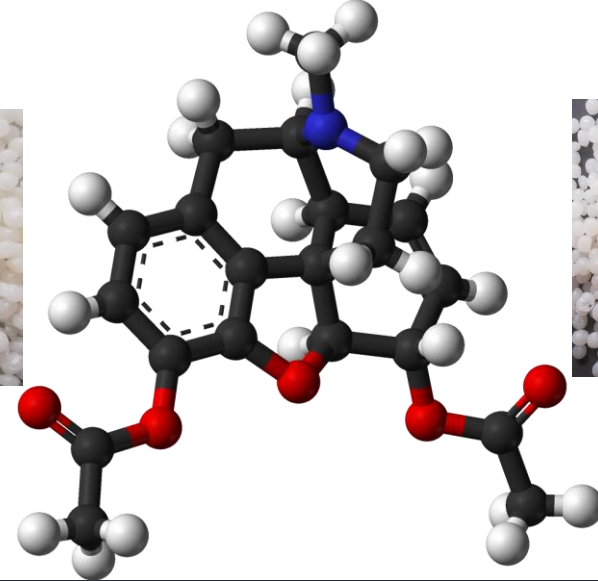


# Flame Retardants



# ISO-CHEMICALS

The past, the present & the future of the flame retardants and additives for XPS & EPS



# Flame Retardants

## POLİMERİK ALEV GECİKTİRİCİ

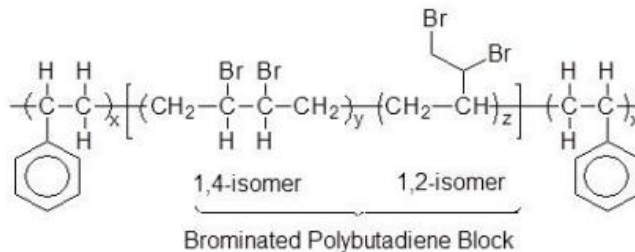
**Chemical name:** Brominated Butadiene/Styrene Block Copolymer

**CAS Number:** 1195978-93-8

### Typical Properties:

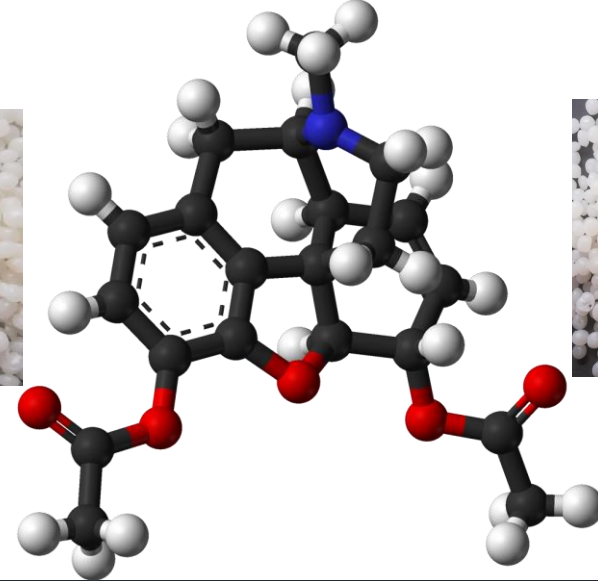
Appearance	white to off-white powder
Softening Range (°C)	120-140
Bromine Content (%)	65
Molecular Weight	100,000
Specific Gravity	1.6

### Flame Retardants



# ISOCHEMICALS

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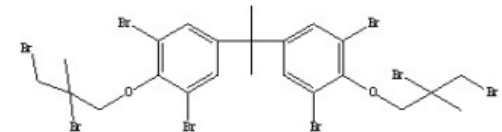


## MONOMERİK ALEV GECİKTİRİCİ

1,1'-(isopropylidene)bis[3,5-dibromo-4-(2,3-dibromo-2-methylpropoxy)benzene]

CAS Reg. Number: 97416-84-7

EINECS Numer: 306-832-3



NEW GENERATION

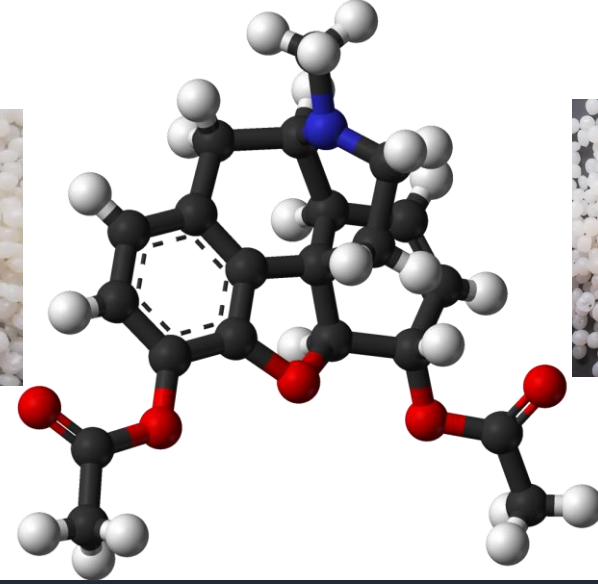
# Flame Retardants

<b>Typical Properties:</b>	Appearance/form .....	white powder/granule
	Bromine Content (%) .....	≥ 65.0
	Melting point (°C) .....	≥ 102
	Water content (%) .....	≤ 0.3
	Main content (%) .....	≥ 96
	TGA	
	1% weight loss, °C .....	≥ 240
	5 % weight loss, °C .....	≥ 260

\*These properties are typical but do not constitute a specification either in part or as a whole. Specification data is available on request from sales, customer

# ISOCHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



## YENİ JENERASYON ALEV GECİKTİRİCİLER

APYROS<sup>TM</sup>

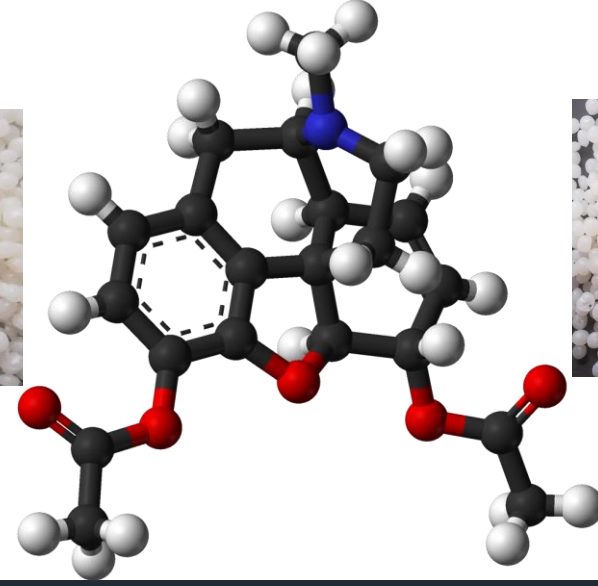
- Apros, Isochemicals'ın XPS ve EPS için masterbatch alev geciktirici markasıdır.
- Üretilen masterbatch, Polimerik hammadde veya Moleküler hammaddeye dayanmaktadır.
- 3 farklı tip üretilen Masterbatch alev ailesidir: Polimerik, Moleküler ve Hibrit (farklı %'lerde Polimerik ve Moleküler karışımları)

NEW GENERATION

Flame  
Retardants

# ISOCHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



# Flame Retardants

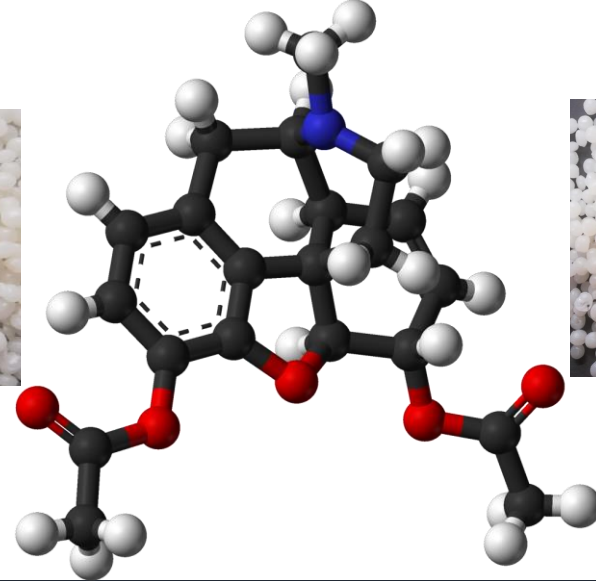
Seçimi etkileyen faktörler  
HBCD free flame retardant

APYROS 

- XPS uygulaması için teknik performans:
  - yanmazlık performansı
  - Termal stabilite
- Fiyat / FR tüketimi
- Sağlık – güvenlik – çevre boyutları

# ISOCHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*

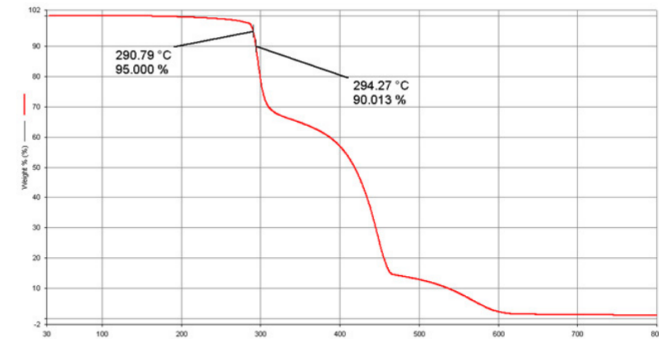


# Flame Retardants

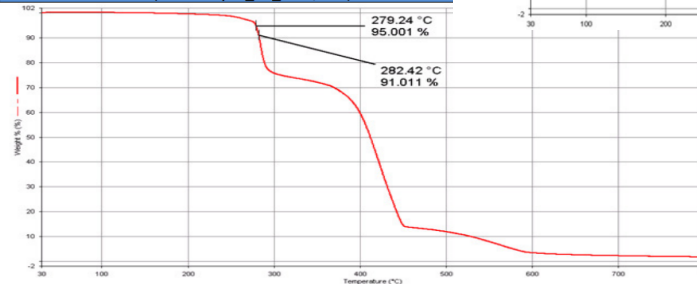
## Seçimi etkileyen faktörler

☐ Termal stabilite

THERMAL STABILITY (TGA analysis\_air\_20°C/min)



THERMAL STABILITY (TGA analysis\_air\_20°C/min)

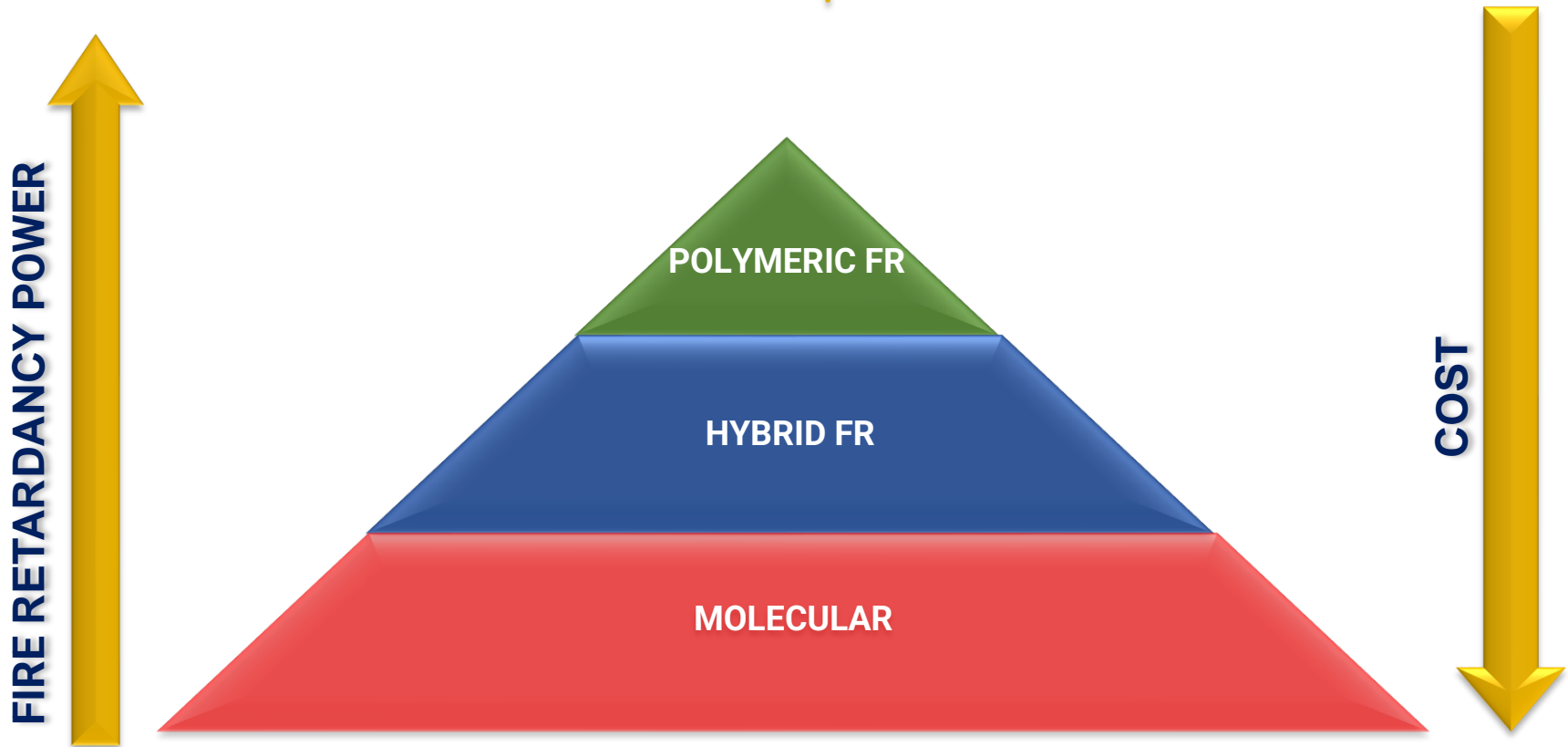




*The past, the present &  
the future of the flame  
retardants and  
additives for XPS & EPS*

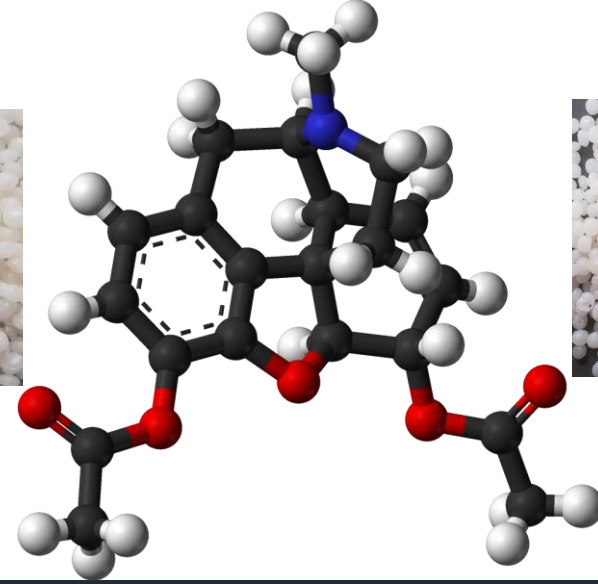


## Connection between performance & costs



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## ÜRETİM

APYROS

### Üretim tesisleri:

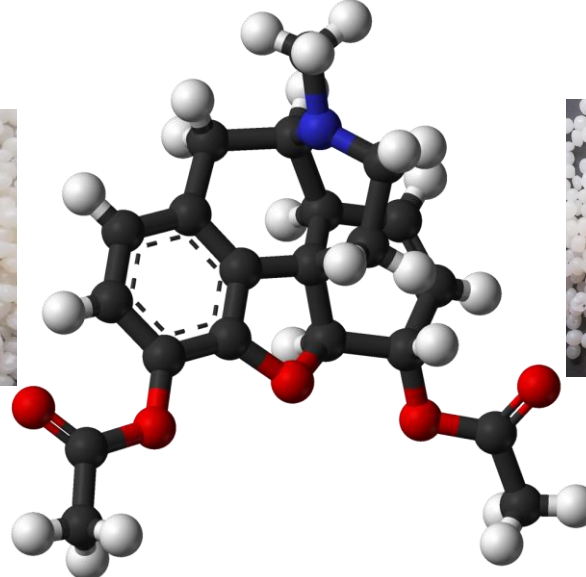
- 4 adet çift vidalı ekstruder hattı
- Gravimetrik dozajlama ünitesi
- Peletleme sistemleri: Granül, dry cut

### Ürün şu şekilde mevcuttur:

- Masterbatch, soğuk haddelenmiş (Cold extruded) ve sıkıştırılmış (compact)
- Ambalaj: 25kg PE torbalar, Big-bag ve Oktabinler
- Müşteri talebine özel ürünler

# ISOCHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



## OUR PRODUCTS

### Production of Masterbatches for XPS:

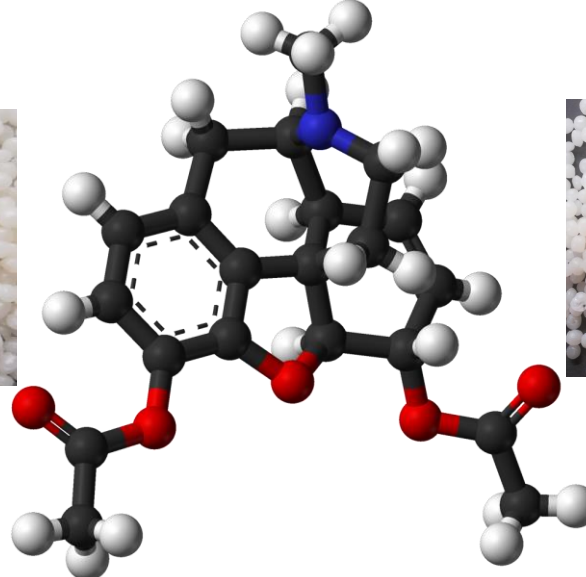
- APYROS Flame Retardants HBCD free
- GREENFAST Processing Aid
- GREENCELL Nucleating Agent

### Production of Masterbatches for EPS:

- APYROS Flame Retardants HBCD free

# ISOCHEMICALS

*The past, the present & the future of the flame retardants and additives for XPS & EPS*



**UNIVERSITY OF PADUA**  
DPCI/Polymer Engineering

- Small scale processing
- Characterization
- Formulation

R&D  
partnership



**UNIVERSITY OF MILAN**

- Polymer Synthesis
- Additives Synthesis
- Characterization

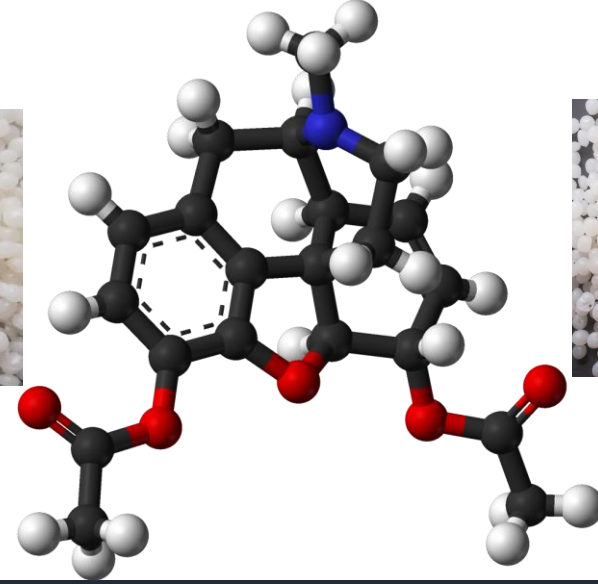
**SACME®**

**Internal R&D Laboratory**

- Pilot scale compounding
- Characterization / Quality control
- R&D staff

# ISOCHEMICALS

*The past, the present &  
the future of the flame  
retardants and  
additives for XPS & EPS*



## XPS ve EPS için Halojensiz Masterbatch Üretimi:

**Halojensiz Masterbatch malzeme geliştirme  
aşamasındayız.**

**Bu malzemeyi hem XPS hem de EPS  
uygulamaları için geliştiriyoruz.  
Hazır olur olmaz resmi olarak başlatacağız.**

**HALOGEN  
FREE**

# ISOCHEMICALS

## Isochemicals

Via del lavoro 2 – 36034 Malo (VI)  
Italy

**Ph** +39 0445 696611

**Fax** +39 0445 696650

## Isochemicals Kimya A.S.

Fenerbahçe Mah. Münir Nurettin Selçuk Cad.

No: 38/5 Kalamış Kadıköy

İstanbul - Turkey

**Ph** +90 850 5325692

**Fax** +90 216 5766866

[www.isochemicals.it](http://www.isochemicals.it)  
[info@isochemicals.it](mailto:info@isochemicals.it)

İlginiz için teşekkür ederiz!