



# LIFE-TRIALKYLYL



LIFE14/ENV/IT/000346

LIFE TRIALKYL- UN PROGETTO TRASVERSALE ALLE PIATTAFORME TECNOLOGICHE  
EUROPEE - Maria Cristina Pasi

**14o Workshop di R&S "Il Programma LIFE per il finanziamento dei progetti innovativi delle Imprese Chimiche"**



With the contribution of the LIFE Programme of the European Union  
under grant agreement LIFE14/ENV/IT/000346



Sviluppo chimica spa

R.  
I.  
S.E

Progetto di tecnologia  
innovativo e sostenibile

Processo industriale  
osmoflotti di alta qualità



16-07-2015

LIFE-TRIALK

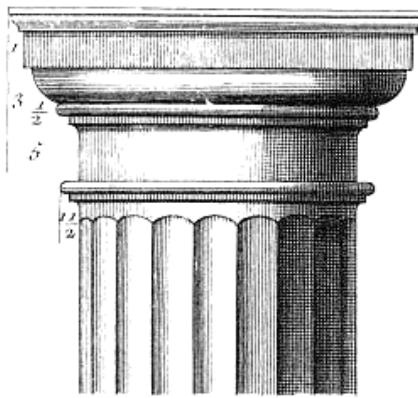


Research Institute of Sweden (SWE)-Associated Beneficiary



# I TRE PILASTRI

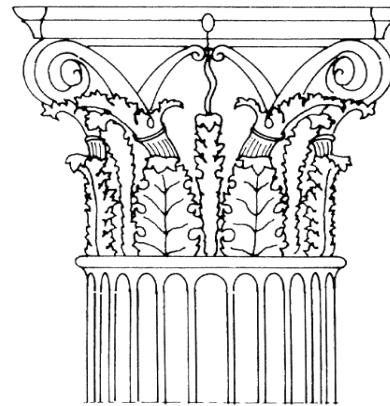
Phenol free



NH<sub>4</sub>Cl



No solventi clorurati/  
no solventi



# IMPATTO ATTESO

## ELEVATA SOSTENIBILITA' AMBIENTALE in ambito

- **Utilizzo delle acque:** 100% risparmio nell'utilizzo di acqua ai fini del processo (640.000l/yr) e risparmio del 100% delle acque industriali per il trattamento dei prodotti secondari (320.000l/yr)
- **Consumo di Energia:** 20-30% riduzione di energia (29.6tCO<sub>2</sub>eq./yr)
- **Tipologia di intermedi e prodotti secondari** (eliminazione delle ammine terziarie e dei solventi clorurati dal processo)



# IMPATTO ATTESO

## IMPATTO SOCIO ECONOMICO

- **Generazione di un prodotto chimico industriale “social care”**
  - Trialchil fosfiti “Phenol free”
  - Riduzione globale di 160.000 t/yr di prodotti pericolosi e di almeno 786t/yr relative a Italmatch chemicals’
  - VOCs < 5ppm
- EU back **leadership** nel segmento per servire le Imprese EU ed extra EU
- Ampliamento della Economia Circolare nell’industria chimica

# IMPLICAZIONI IN AMBITO POLICY

- **Registrazione europea e globale di una nuova tecnologia industriale:** restart in Europa di produzione sostenibile di Trialchilfosfati (ECHA)
- Adesione al programma **Horizon 2020** ed alle strategie delle varie **ETPs**

## Water and Phosphorus Platforms.....

- **Sviluppo di nuove partnerships** nei vari settori dell'industria delle materie plastiche
- **Progetti di Co-development** con l'industria agroalimentare in ambito afterLIFE dall'Italia all'EU all'Extra EU



# LIFE-TRIALKYL E LE PRIORITA' DI LIFE 2014-2020



## LIFE 2014-2020 – Priority Areas

- **Environment** sub-programme (**2,592.5 Million euros**)
  - Includes: Environment & Resource Efficiency
- **Climate Action** sub-programme (**864.2 Million euros**)
- Priorities for **Water** area of sub-programme for Environment
  - Supporting the implementation of relevant Directives (e.g. WFD, MSFD)
  - Roadmap for a Resource-Efficient Europe and the 7th Environment Action Programme
  - Activities to ensure **safe and efficient use of water resources**, improving quantitative water management, preserving a high level of water quality and avoiding misuse and deterioration of water resources.

Executive Agency for SMEs



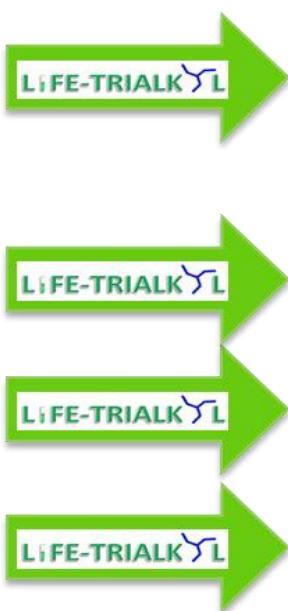
# LIFE-TRIALKYL E LE PRIORITA' DI LIFE 2014-2020

## KEY Environmental links

- **IED** - Industrial Emission Directive published Jan 2011, compliance with the [included Integrated Pollution Prevention and Control \(IPPC\) Directive](#)
- **BAT**- Best Available Technique <http://eippcb.jrc.ec.europa.eu/reference/>
- **BREF** – Best available REference documents [The Industrial Emissions Directive.docx](#)



# LIFE-TRIALKYL E LE PRIORITA' DI LIFE 2014-2020



## Desired outcomes from IED implementation

### A. Consistent application of BAT

- i. **Reduced emissions** – both locally and nationally
- ii. **Level playing field for competition** – or, at least, less uneven

### B. Industry revitalised - innovative ideas on reducing environmental impact and improving resource efficiency

### C. Emission prevention - a move from the back-end abatement of emissions, to process-integrated controls at source

### D. Improved identification of BAT - feedback loop of high quality information to subsequent BREF reviews / BAT evolution



# LIFE-TRIALKYL E LE PRIORITA' DI LIFE 2014-2020



## 7th Environmental Action Programme: Non-toxic environment

- *To address deficiencies and legislative gaps in current EU policy and legislation*
- *Long term perspective*
- *Links with circular economy*



# LIFE-TRIALKYL E LE PRIORITA' DI LIFE 2014-2020



## Environment WATER topics

### ➤ Water, floods and drought

- Management of nutrients, organic pollution (human/ agricultural origin) and chemicals
- Re-naturalising water env (river, lake, coastal)

### ➤ Marine and coastal management

- pressure of activities on marine environment

### ➤ Water Industry

- technologies for drinking water and urban WWT
- innovative solutions and/or treatment options regarding recycled/reclaimed water/water supply/reuse and recovery of resources



## E GLI ENVIRONMENTAL WATER TOPICS: IL SIRA (Strategic Innovation Research Agenda)-WSSTP

*«Il concetto di acque multiple: Acque multiple per diversi fini e diversi utenti: un cambiamento paradigmatico verso una società water smart sostenibile e circolare», SIRA WSSTP*

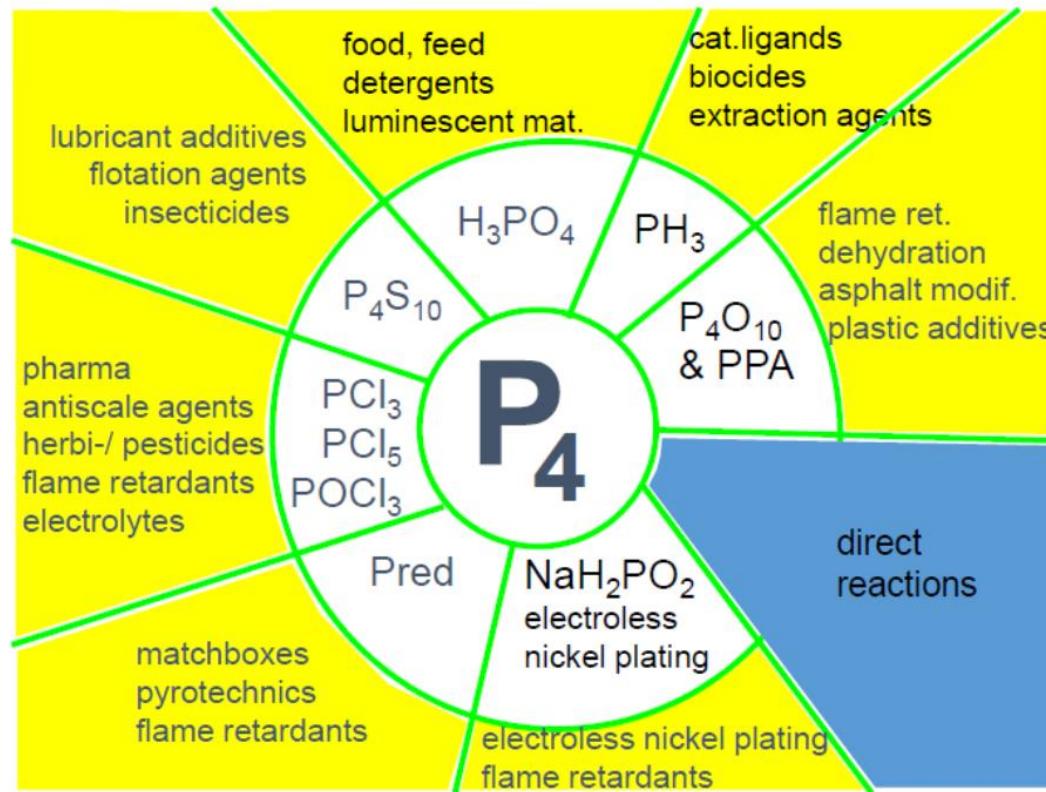


## E GLI ENVIRONMENTAL WATER TOPICS: IL SIRA (Strategic Innovation Research Agenda)-WSSTP

1. Riduzione del 50% dell'impatto della società europea sulle nostre risorse idriche naturali;
2. Presa di coscienza del reale valore dell'acqua per la società, l'economia e l'ambiente;
3. Forte stimolo al mercato idrico europeo nonché alla competitività globale dell'industria idrica europea;
4. Assicurazione della resilienza, della stabilità, della sostenibilità e della sicurezza sul lungo periodo della società, in relazione alle risorse idriche

## LIFE-TRIALKYL

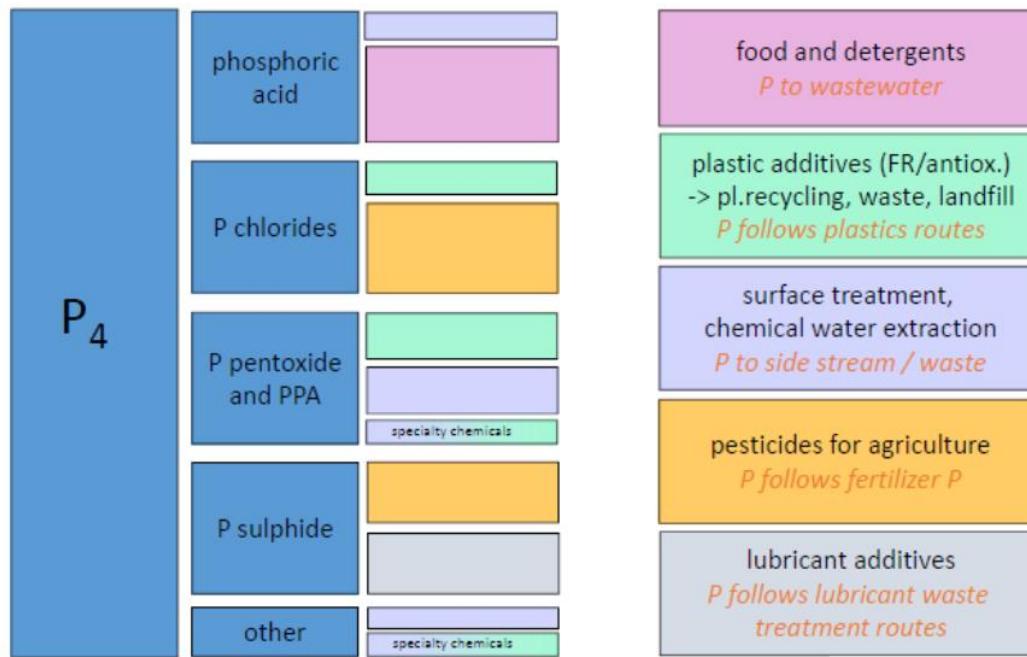
## E GLI ENVIRONMENTAL PHOSPHORUS TOPICS: ESPP



# E GLI ENVIRONMENTAL PHOSPHORUS TOPICS: ESPP

## Phosphorus product routes

surprisingly, P<sub>4</sub> derivatives P ends up in five broad categories only



# LIFE-TRIALKYL E LE 41 ETPs

Bio-based economy	Energy	Environment	ICT	Production and processes	Transport
<a href="#">EATIP</a>	<a href="#">Biofuels</a>	<a href="#">WssTP</a>	<a href="#">ARTEMIS</a>	<a href="#">ECTP</a>	<a href="#">ACARE</a>
<a href="#">ETPGAH</a>	<a href="#">EU PV TP</a>	<a href="#">Industrial safety</a>	<a href="#">ENIAC</a>	<a href="#">ESTEP</a>	<a href="#">ALICE</a>
<a href="#">FABRE TP</a>	<a href="#">TP OCEAN</a>		<a href="#">EPoSS</a>	<a href="#">EuMaT</a>	<a href="#">ERRAC</a>
<a href="#">Food for Life</a>	<a href="#">RHC</a>		<a href="#">ETP4HPC</a>	<a href="#">FTC</a>	<a href="#">ERTRAC</a>
<a href="#">Forest-based</a>	<a href="#">SmartGrids</a>		<a href="#">euRobotics [AISBL]</a>	<a href="#">Manufuture</a>	<a href="#">Waterborne</a>
<a href="#">Plants</a>	<a href="#">SNETP</a>		<a href="#">NEM</a>	<a href="#">Nanomedicine</a>	
<a href="#">TP Organics</a>	<a href="#">ETIPWind</a>		<a href="#">NESSI</a>	<a href="#">SMR</a>	
	<a href="#">ZEP</a>		<a href="#">Networld 2020</a>	<a href="#">SusChem</a>	
			<a href="#">Photonics 21</a>		



# La squadra



# Il progetto: indicazioni

**LIFE-TRIALKYL**

Chemicals are an essential part of European Union Citizens' daily lives. The EU chemicals sector is a strategic segment for the EU. Chemistry is in every aspect of our daily lives even though we often don't see.

However, if not properly used and controlled, some chemicals could be difficult to manage in the environment.

Various specific phosphorus derivatives are used in a wide range of applications, including pesticides, flame retardants, plastics, childcare products and pharmaceuticals.

The main objectives of the project are to:

- Set up an innovative, sustainable and efficient Industrial continuous process to obtain high quality Trialkyl Phosphites
- Analyze the whole process from a Life-Cycle Assessment perspective
- Avoid the production of hazardous Intermediaries and by-products and the use of dangerous chemicals for waste water treatment
- Increase awareness about alternative, sustainable and eco-friendly chemical processes in the chemical industry
- Reduce energy consumption in the process by 20-30%, 100% recovery of solvents and elimination of waste water treatment
- Reduce water consumption and avoid waste water production compared to the current production processes

The LIFE-Trialkyl Project will also have a relevant socio economic impact, in particular:

- Generation of a social care chemical industrial product
- EU regained leadership in the chemical additives segment to serve EU and extra EU Enterprises
- Enhancement of the circular economy in the chemical industry

**"LIFE-Trialkyl Project aims at fostering the innovative technologies to develop eco-sustainable chemicals"**



**LIFE-TRIALKYL**  
in short

Project acronym	LIFE-Trialkyl
Project reference	LIFE14 ENV/IT/000346
Funding	LIFE Programme of the European Union
Topic	Environment
Total Budget	2,243,969.00 €
Start and end date	16 July 2015 to 16 October 2018
Duration	36 months
Leader	Italmatch Chemicals S.p.A.
Partners	SC Sviluppo chimica S.p.A., SP Technical Research Institute of Sweden
Project Locations	Lombardia (IT), Västsverige (SE)

**For more information**  
 visit our website: [www.life-trialkyl.eu](http://www.life-trialkyl.eu)

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