

**prs**  
Plastics Recycling Show  
**EUROPE**  
Wednesday 29th & Thursday 30th March  
RAI, Amsterdam

PLASTICS RECYCLERS EUROPE  
CRAIN

Parking P1  
Parking Ticket

Grand Calls  
Parking P2-P10  
Bus stop K, R  
Congress Centre  
RAI Theater  
D, E, F, G, K, L, M, S

Entrance C

WELCOME TO  
**prs**  
EUROPE

Entrance C

WELCOME TO  
**prs**  
EUROPE



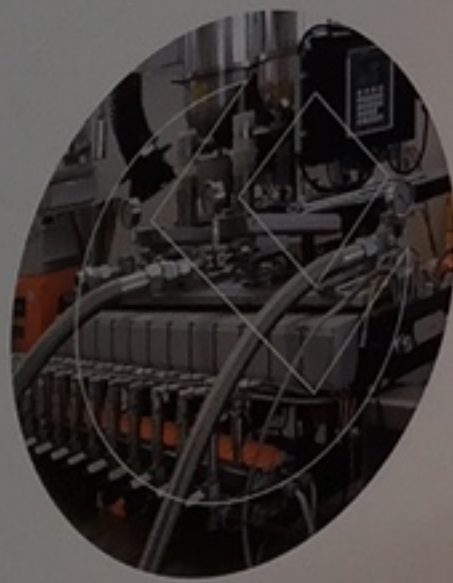


# C28 AIMPLAS

## RECYCLING PILOT PLANT



## COMPOUNDING PILOT PLANT



## R&D lines

- Waste minimization
- Selective sorting and separation of complex waste
- Decontamination of recycled plastic to remove hazardous and odour
- Improvement of recycled plastic through compounding
- Recycling of thermosetting/elastomer plastics
- New market applications for recycled plastics (automotive, construction, food packaging)
- Chemical recycling of plastic waste
- Ecodesign, LCA and eco-labelling of recycled products

## Competitive Intelligence

Estrategic key information services for the business decision-making  
→ Technical and legislative news, information of technical

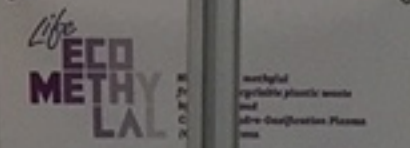


## Training

The highest specialized technical offer in the plastics and recycling sector  
→ On-line courses

## Analysis and testing

AIMPLAS is specialised in the mechanical, physical, thermal and chemical characterization of plastics according to the EN, ISO and ASTM standards



... domestic materials and products

## LIFE EXTRUCLEAN

REMOVAL OF HAZARDOUS SUBSTANCES IN POLYETHYLENE PACKAGES USING SUPERCRITICAL CARBON DIOXIDE (sc-CO<sub>2</sub>) IN RECYCLING PROCESS  
Eliminación de sustancias peligrosas en envases de polietileno mediante dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en los procesos de reciclaje.  
Objetivos/Objetivos  
Demonstration of the viability of the elimination of hazardous substances in polyethylene (PE) waste, coming from packages of solvents or pharmaceutical products, by the use of supercritical carbon dioxide (sc-CO<sub>2</sub>) in the extraction process involved in plastics recycling, eliminating partially or totally two of the three cleaning and drying stages needed nowadays.  
The project will develop a new recycling technology for waste plastic packaging for hazardous substances, reducing considerably the consumption of water, energy and chemicals used in the current system.  
Demostración de la viabilidad de la eliminación de sustancias y residuos peligrosos en residuos de polietileno (PE), procedentes de los envases de disolventes o productos farmacéuticos, utilizando dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en el proceso de extracción involucrado en el reciclaje de plásticos, para eliminar parcial o totalmente dos de las tres etapas de lavado y secado necesarias hoy en día.  
El proyecto desarrollará una nueva tecnología de reciclado de envases de plástico contaminados con sustancias peligrosas, en la que se reducirá considerablemente el consumo de agua, energía y productos químicos utilizados respecto al sistema actual.

## NEW MARK



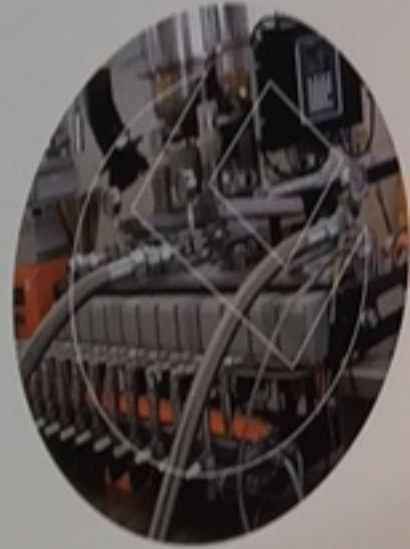


# C28 AIMPLAS

## RECYCLING PILOT PLANT



## COMPOUNDING PILOT PLANT



## R&D lines

- Waste minimization
- Selective sorting and separation of complex waste
- Decontamination of recycled plastic to remove hazardous and odour
- Improvement of recycled plastic through compounding
- Recycling of thermosetting/elastomer plastics
- New market applications for recycled plastics (automotive, construction, food packaging)
- Chemical recycling of plastic waste
- Ecodesign, LCA and eco-labeling of recycled products

## Competitive Intelligence

Estrategic key information services for the business decision-making  
→ Technical and legislative news, information sides

### LIFE ENTRUCLEAN

REMOVAL OF HAZARDOUS SUBSTANCES IN PLA VEGETABLE BAGGAGES USING SUPERCRITICAL CARBON DIOXIDE (SC-CO<sub>2</sub>) IN RECYCLING PROCESS

Eliminación de sustancias peligrosas en residuos de plástico mediante dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en el proceso de reciclaje

Characteristics/Objetivos

Characterization of the viability of the absorption of hazardous substances in polylactide (PLA) waste, coming from packages of vegetable or pharmaceutical products, by the use of supercritical carbon dioxide (sc-CO<sub>2</sub>) in the extraction process, involved in plastic recycling, generating partially or totally free of the toxic cleaning and drying stages, needed nowadays.

The project will develop a new recycling technology for waste plastic packaging for hazardous substances, reducing considerably the consumption of water, energy and chemicals used in the current system.

Demonstración de la viabilidad de la absorción de sustancias peligrosas y plásticos polimerizados en residuos de polilactido (PLA), procedentes de los envases de productos de naturaleza vegetal o farmacéutica, utilizando dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en el proceso de extracción, involucrado en el reciclaje de plásticos, para eliminar parcial o totalmente las etapas de limpieza y secado necesarias hoy en día.

El proyecto desarrollará una nueva tecnología de reciclaje de residuos de plásticos de empaquetado con sustancias peligrosas, en el que se reduzca o elimine totalmente el consumo de agua, energía y productos químicos utilizados respecto al sistema actual.



## Training

The highest specialized technical offer in the plastics and recycling sector

- On-line courses
- Courses

## Analysis and testing

AIMPLAS is specialised in mechanical, physical, thermal and chemical characterisation of plastics according to the EN, ISO and ASTM standards

### ECO METH LAL

High purity recycled PLA for rigid plastic parts

By an improved chemical recycling process

High purity recycled PLA for rigid plastic parts

By an improved chemical recycling process

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By an improved chemical recycling process



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**Life ECOMETHYLAL**

**High quality methylal from non-recyclable plastic waste by an improved Catalytic Hydro-Gasification Plasma (CHGP) process.**

LIFE ECOMETHYLAL will test the valorisation of NRPW that is currently landfilled –especially heterogeneous plastic waste– using Catalytic Hydro-Gasification with Plasma (CHGP) a more environmentally friendly technology than the ones currently used. The project will recycle NRPW from the automotive, electric-electronic and packaging sectors to produce a valuable chemical agent called methylal.

The market for methylal is estimated to be worth about €5.2 billion/year. It is used in various industries due to its low toxicity, low viscosity and especially its high solvent power making it a sustainable alternative to petrol-based solvents. Therefore, the project addresses two major problems: the recovery of difficult plastic waste and the dependency on fossil fuel-derived materials.

The proposed technology, which has not previously been used for treating NRPW, will be demonstrated on a pilot plant initially installed in Spain. The plant will operate continuously, increasing efficiency and reducing energy consumption. This plant will then be delivered and implemented in Croatia to test its replicability potential, which should be high due to its compact and modular configuration.

The methylal produced will be marketed as an eco-material in various sectors (e.g. plastics, chemicals and automotive). LIFE ECOMETHYLAL will contribute to the implementation of the Roadmap for a Resource-Efficient Europe, the Action Plan for the Circular Economy and the European directives: Packaging and Packaging Waste; Waste Electrical & Electronic Equipment; End-of-Life Vehicles; Waste Framework; and Landfill of Waste.

**EXPECTED RESULTS**

**REDUCTION OF NRPW IN LANDFILL ~ NEW ECOPRODUCT COMMERCIALIZED**

- ~3.6T plastic waste → Reduction of around 3.6 tonnes plastic waste sent to landfill, accounting for 0.28 tonnes CO<sub>2</sub> eq. or more than 304 MJ eq. per pilot plant during the project period.
- ~2.88T methylal (solvent) → Production of 2.88 tonnes methylal through waste resources (thus saving virgin fossil resources), leading to a reduction of 2.07 tonnes CO<sub>2</sub> eq., more than 107 300 MJ eq. per pilot plant.
- ~ Improved economic and environmental efficiency of the recycling companies in order to achieve EU zero waste targets (thereby improving competitiveness).
- ~ A replicable strategy for recovery of plastic waste in other EU countries.
- ~ Implementation of a cleaning process for plastic recovery.

**COORDINATOR**  
AIMPLAS PLASTICS TECHNOLOGY CENTRE

**PARTNERS**  
acteco, BPP, FIB-PLASMA, ARESA

DURATION 01\_SEP\_2016 to 31\_AUG\_2019 TOTAL BUDGET 2,039,142.00 € EU CONTRIBUTION 1,031,678.00 €

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No LIFE15 ENV/ES/000208



## RECYCLING PILOT PLANT



## COMPOUNDING PILOT PLANT



 **AIMPLAS**  
PLASTICS TECHNOLOGY  
CENTRE

# R&D lines

- Waste minimization
- Selective sorting and separation of complex waste
- Decontamination of recycled plastic to remove hazardous and odour
- Improvement of recycled plastic through compounding
- Recycling of thermosetting/ elastomer plastics
- New market applications for recycled plastics (automotive, construction, food packaging)

Recycling of plastic waste  
Pre-labelling of



## CHEMICAL

### LIFE EXTRUCLER

REMOVAL OF HAZARDOUS SUBSTANCES FROM POLYETHYLENE PACKAGES USING SUPERCRITICAL CARBON DIOXIDE (sc-CO<sub>2</sub>) IN RECYCLING PROCESS

Eliminación de sustancias peligrosas en envases de polietileno mediante dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en los procesos de reciclaje.

Objetivos/Objetivos

Demonstration of the viability of the elimination of hazardous substances in polyethylene (PE) waste, coming from pharmaceuticals or solvents or phytosanitary products, by the use of supercritical carbon dioxide (sc-CO<sub>2</sub>) in the extrusion process of plastics recycling, eliminating partially or totally the cleaning and drying stages needed.

The project will develop a new recycling technology for plastic packaging for hazardous substances, considerably the consumption of water, energy and space used in the current system.

Demostración de la viabilidad de la eliminación de sustancias y mezclas peligrosas de residuos de polietileno (PE) procedentes de los envases farmacéuticos, solventes o productos fitosanitarios, utilizando dióxido de carbono supercrítico (sc-CO<sub>2</sub>) en el proceso de reciclaje de plásticos, para eliminar parcialmente o totalmente las etapas de lavado y secado.

El proyecto desarrollará una nueva tecnología de reciclaje de envases de plástico con sustancias peligrosas, en el que se reduce considerablemente el consumo de agua, energía y espacio respecto al sistema actual.

High quality recycled plastic products with reduced environmental impact.

AIMPLAS







Characterization of recycled plastics  
Recycled plastic in food packaging

→ Production of 2.88 tonnes methylal through waste resources (thus saving virgin fossil resources), leading to a reduction of 100 tonnes CO<sub>2</sub> eq. more than 107 300 MJ eq. per pilot plant.

→ Improved economic and environmental efficiency of the recycling process in order to achieve EU zero waste targets (thereby improving competitiveness).

→ A replicable strategy for recovery of plastic waste in other EU regions.

→ Implementation of a cleaning process for plastic recovery.

COORDINATOR: AIMPLAS (INSTITUTO TECNOLÓGICO DEL PLÁSTICO)

PARTNERS: acteco, BPP, ITC (INSTITUTO TECNOLÓGICO DE INVESTIGACIONES DE TECNOLÓGICO), Aves

DURATION 01\_SEP\_2016 to 31\_AUG\_2019 TOTAL BUDGET 2,039,142.00 € EU CONTRIBUTION 1,031,678.00 €

This project has received funding from the European Union under the Horizon 2020 research and innovation programme under grant agreement No 101019150 (LIFE18 ENV/ES/000000)

acer

Life Future METHYLAL

High quality methylal from non-recyclable plastic waste by an improved Catalytic Hydro-Gasification Plasma (CHGP) process.

LIFE FUTURE

Sustainable 15 ton FoodSafe food design to perform environmental and performance improvements in the green procurement framework

www.life-future-project.eu

This project has received funding from the LIFE financial instrument of the European Union under grant agreement No LIFE18 ENV/ES/000000

BANUS

Definition and development of functional barriers for the use of recycled materials in multilayer food packaging

OBJECTIVE: Development of new multilayer structures for food packaging applications suitable for using recycled materials.

3 CASE STUDIES:

Case Study	Material	Application	Country
1	PE	Food packaging	Spain
2	PP	Food packaging	Spain
3	PE	Food packaging	Spain

RESULTS: Best Practice Guide: download: <http://www.banus-project.eu> banus@aimplas.es

PARTNERS: AIMPLAS, acteco, BPP, ITC, Aves

BEST PRACTICE GUIDE PRESENTATION AT: doplast 2019

URBANREC

ABOUT THE PROJECT: URBANREC project aims to implement an innovative and integral bulky waste management system with demonstrated replicability in different EU regions: Barcelona, Mediterranean, Central and Northern regions in Europe, representing 40% of the EU population and 25% of the EU GDP. URBANREC is a 3 R+D+I cooperation and 7 actions being implemented in the different scenarios at European level for the implementation of different activities proposed in URBANREC project.

URBANREC goals:

- The logistics, implementing collection and sorting
- Separation and disassembling processes of bulky waste, implementing advanced techniques such as: Thermogravimetric (TG) tests.
- To obtain high quality raw materials, i.e. metals, plastics, wood, textiles, biomass, etc.
- Promoting temperature valorisation routes for those which are considered more profitable.
- Evaluation and optimization of current situation in the 4 selected areas and the definition of educational programs.
- The obtained results will be employed as a basis to finally propose recommendations for a draft European legislation on bulky waste management.

URBANREC OBJECTIVES:

Reduction up to 50% of the total bulky waste landfilled at local level in the Catalonia region. A demonstration will be carried out in the Catalonia region, by creating a network of local companies and citizens to reduce the bulky waste reuse in 15% in Barcelona and 10% in the rest of the region.

Demonstrate how to Valorize-Spain of innovative, fragmentation and catalytic hydro-gasification technology for the 82% of the bulky waste landfilled. Instead and separate, to utilize waste to energy coming from bulky waste, leaving a final landfilling lower than 18%.

The CA areas treating bulky waste according to URBANREC management system (Barcelona-Spain) and (Northern-Spain) will increase profitability in 30% for the benefit of local citizens instead of going to landfilling.

The technologies developed in URBANREC will contribute to the reduction of CO<sub>2</sub> emissions (avoiding landfilling and incineration) of about 8 20%.

Raw labels will be optimized for the final products (decorative panels, windows, doors, mattresses, neobutyl, reinforced plastic, PVC) and ETV assessment for raw technology.

Preparation of a Guide to implement URBANREC management at European level.

Implementation of educational programs customized to the needs of citizens. At least 12,000 citizens will benefit of these URBANREC activities.

At least 24 new non-profits associations and second hand shops will be created and incorporated in the bulky waste logistics routes at the demonstration areas in URBANREC.

PARTNERS: AIMPLAS, Instituto Tecnológico del Plástico, Instituto Tecnológico de Investigaciones de Tecnológico, Aves, acteco, BPP, ITC, Aves

BUDGET: 2,039,142.00 € EU CONTRIBUTION 1,031,678.00 €

www.urbanrec-project.eu



PLAS  
LOGY

## Analysis and testing

AIMPLAS is specialised in the mechanical, physical, thermal and chemical characterisation of plastics according to the EN, ISO and ASTM standards

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Characterizat  
Validation of  
requirements  
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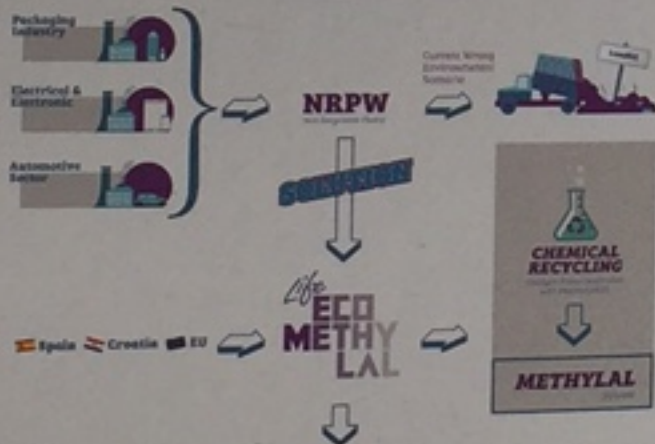
Technical  
recycling sector

astics  
aging

Life  
ECO  
METHY  
LAL

High quality methylal  
from non-recyclable plastic waste  
by an improved  
Catalytic Hydro-Gasification Plasma  
(CHGP) process.

LIFE ECO METHY LAL will use the valorisation of NRPW that is currently landfilled  
respectively incinerated plastic waste using Catalytic Hydro-Gasification Plasma with  
Plasma (CHGP) to produce methanol and methylal. The project will recycle NRPW from the automotive, electrical and  
packaging sectors to produce a valuable chemical product (methylal).  
The market for methylal is estimated to be worth about 0.2 billion Euros. It is  
used in various industries that do not require high purity and viscosity. It is  
a green alternative to other solvents and is used in various applications. The plant  
will be built in Spain and will be the first of its kind in Europe. The plant will  
produce methylal and methanol. The plant will be built in Spain and will be the  
first of its kind in Europe. The plant will produce methylal and methanol.  
The methylal produced will be used in various industries. The plant will  
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EXPECTED RESULTS  
REDUCTION OF NRPW IN LANDFILL - NEW ECOPRODUCTY COMMERCIALIZED

-3.6T plastic waste  
Reduction of around 3.6 tonnes plastic waste sent to landfill,  
accounting for 0.28 tonnes CO<sub>2</sub> eq. or more than 304 MJ eq. per  
plastic plant during the project period.

2.88T methylal  
Production of 2.88 tonnes methylal through waste resources  
(thus saving virgin fossil resources), leading to a reduction of 2.07  
tonnes CO<sub>2</sub> eq. more than 207 300 MJ eq. per plastic plant.

Improved economic and environmental efficiency of the recycling companies  
in order to achieve EU zero waste targets (thereby improving competitiveness).

A replicable strategy for recovery of plastic waste in other EU countries.

Implementation of a cleaning  
process for plastic recovery.

COORDINATOR: AIMPLAS  
PARTNERS: acteco, BPP, recyplast, AUREA

DURATION 01\_SEP\_2014 to 31\_AUG\_2019 TOTAL BUDGET 2,029,142.00 € EU CONTRIBUTION 1,011,670.00 €

This project has received funding from  
the European Union under the Horizon  
programme No 101019150/2014-10-01

tivaco  
recycling of plastics

We purchase scraps & regrinds  
in POLYPROPYLENE and ELASTOMERS  
We sell regrindated POLYPROPYLENE  
and ELASTOMERS

D26 STF Group

stf-Maschine & Anlagenbau GmbH

C22 BessTrade

PROFESSIONAL PLASTIC RECYCLING

recycling technology

AIMPLAS  
PLASTIC TECHNOLOGY  
CENTRE



PLAS  
LOGY

## Analysis and testing

AIMPLAS is specialised in the mechanical, physical, thermal and chemical characterisation of plastics according to the EN, ISO and ASTM standards

Characterizat  
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Life  
ECO  
METHYLAL

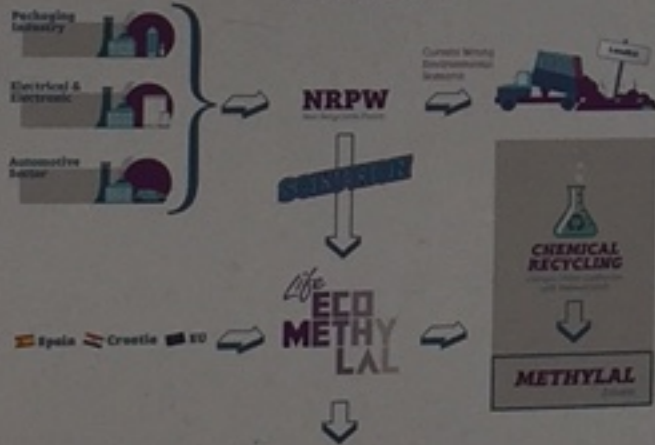
High quality methylal  
from non-recyclable plastic waste  
by an improved  
Catalytic Hydro-Gasification Plasma  
(CHGP) process.

LIFE BIODIVERTAL will use the valorisation of NRPW (non-recyclable plastic waste) to produce high quality methylal (CHMP) using Catalytic Hydro-Gasification Plasma (CHGP) process. This project will recycle NRPW from the industrial, domestic and agricultural packaging sectors to produce a valuable chemical agent called methylal.

The market for methylal is estimated to be worth about 15.2 million/year. It is used in various industries such as in the chemical, pharmaceutical and agricultural sectors. The project addresses two major problems: the recovery of difficult plastic waste and the dependency on fossil fuel-derived resources.

The project activities will be implemented in two phases. The pilot plant will be developed and implemented in Croatia. The pilot plant will be used to produce and implement in Croatia. The pilot plant will be used to produce and implement in Croatia. The pilot plant will be used to produce and implement in Croatia.

The results of the project will be used to develop a commercial plant and to promote the use of methylal in various industries. LIFE BIODIVERTAL will contribute to the implementation of the Circular Economy and the European Strategy for Plastics. LIFE BIODIVERTAL will contribute to the implementation of the Circular Economy and the European Strategy for Plastics. LIFE BIODIVERTAL will contribute to the implementation of the Circular Economy and the European Strategy for Plastics.



EXPANDED RESULTS  
REDUCTION OF NRPW IN LANDFILL - NEW ECOPRODUCT COMMERCIALIZED

→ Reduction of around 3.6 tonnes plastic waste sent to landfill accounting for 0.28 tonnes CO<sub>2</sub> eq. or more than 204 MJ eq. per pilot plant during the project period.

→ Production of 2.88 tonnes methylal through waste resources (thus saving virgin fossil resources), leading to a reduction of 237 tonnes CO<sub>2</sub> eq., more than 187 300 MJ eq. per pilot plant.

→ Improved economic and environmental efficiency of the recycling company in order to achieve EU zero waste targets (thereby improving competitiveness).

→ A replicable strategy for recovery of plastic waste in other EU countries.

→ Implementation of a cleaning process for plastic recovery.

COORDINATOR: AIMPLAS  
PARTNERS: acteco, BPP, ARESA

DURATION 01 SEP 2016 to 31 AUG 2019 TOTAL BUDGET 2,894,342.86 € EU CONTRIBUTION 1,871,676.86 €

Technical  
recycling sector

Plastics  
Packaging

tivaco  
recycling of plastics

We purchase scraps & regrinds  
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