NOVOLACS, POLYOLS & SURFACTANTS
AROMATIC CHEMISTRY FROM THE SHELLS OF CASHEW-NUTS:
A RENEWABLE AND NON-FOOD RESOURCE.

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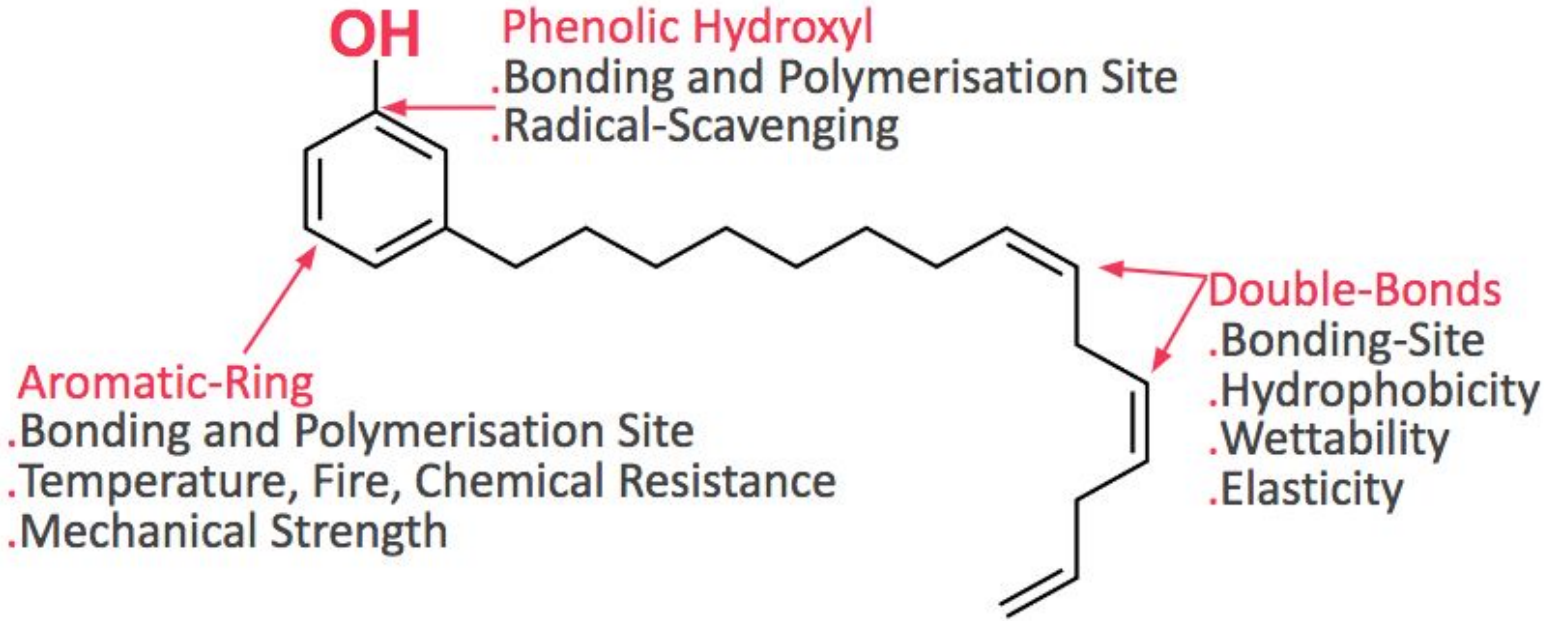
ExaPhen

What is Cardanol?

ExaPhen is based on refined and distilled cashew-nut-shell oil. It is called cardanol.
Cardanol is a carbon-neutral and non-estrogenic alkenyl-phenol, with multiple properties.
We use it as a base for building-blocks, in substitution to traditional petrol-based.
ExaPhen helps you with saving the CO_2 impact associated with your productions.
We are not regulated by the Nagoya Protocol.



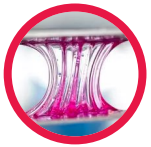
Product	OH value (g/eq)	Viscosity cps at 25°C	Solubility 1% in Water 20° C	Gardner Scale	Functional Group	Aromatic Content %
XFN 1050 PolyPhenol	295-318	1,000	Insoluble	14-18	4, Phenolic OH	28
XFN 1400 PolyPhenol	295-318	30,000		14-18	8, Phenolic OH	28
XFN 1400 LV PolyPhenol	187-201	3,000		14-18	8, Phenolic OH	23
CSBR 3E9C (r&d) Linear Aromatic C9	240-260	20 - 40		1 - 4	1, Phenolic OH	45
XFN 10 Linear Aromatic C15	295-318	50		6-12	1, Phenolic OH	28
XFN 1450 PolyPhenol	316 - 341	500		9-12	4, Primary OH	22
XFN CCAT 3151 Mannich	150-170	7,000	Soluble If neutralised with acid	14-18	2, Primary OH 1, Phenolic OH	20

70 to 99% Bio/Recycled

- Non-estrogenic
- Block Isocyanate
- Resin Modification
- For Hardening /Toughening
- Increase Tack
- Improves Resistance to,
  - Corrosion,
  - Adhesion
  - Temperature
  - Fire

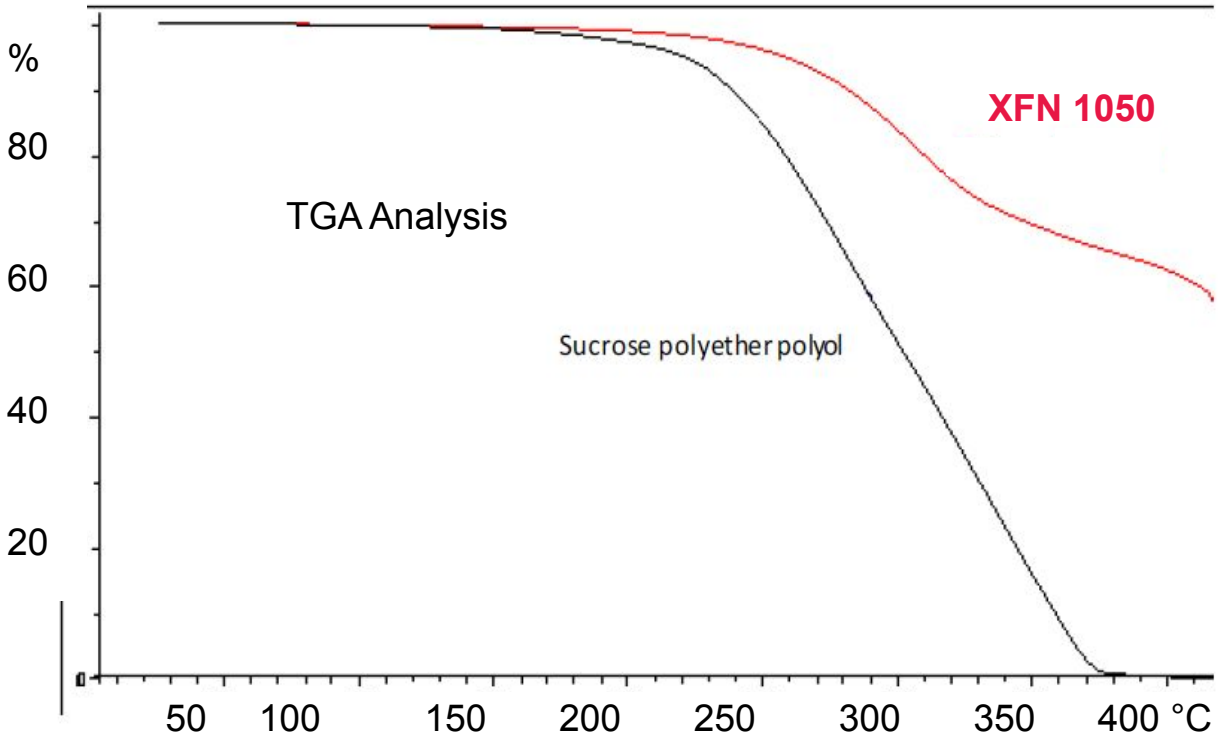
Paints / TopCoats

PUD/Resins



Adhesives / Sealants

High Thermal Stability



OH

R

ExaPhen™

Polyols

Product	OH value (g/eq)	Viscosity cps at 25°C	Solubility 1% in Water 20°C	Gardner Scale	Functional Group	Aromatic Content %
XFN 362 Aromatic Polyol	145-165	500	-	9-12	4, Primary OH	22
XFN 50 Aromatic Polyol	170-200	1,000		14-18	4, Phenolic OH	28
XFN 53-80 Aromatic Polyol	270-330	4,000		14-18	8, Phenolic OH	23
XFN 10 Linear Aromatic	170-200	50		1-10	1, Phenolic OH	28
XFN 53 Aromatic Polyol	170-200	35,000		14-18	8, Phenolic OH	28
XFN 150 Mannich Polyol	500-550	6,500	Soluble	14-18	2, Primary OH 1, Tertiary OH	20

70 to 99% Bio/Recycled

- Non-estrogenic
- Favors Mix-flow
- Support Low Lambda
- Support Wide Density Range
- Improves,
  - Temperature
  - Anti-Fire
  - Strength
  - Adhesion to Substrates

PUR /PIR Foams

PU Castings

Tooling Boards

Spray

- XFN150 has proven to be great performer achieving from **low to medium densities** (8 to 32 Kg/m3) .

  Percentage: 20 to 50%

  Blowing agents: water, HFO, HFC.
- VIDEO LINK

Blocks /Panels PIR

- XFN 50, as a **competitive traditional APP** replacement.

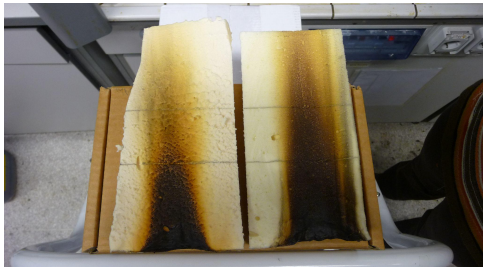
  Improved anti-fire with density 30-40 Kg/m3

  Percentage: 15-20%

  Blowing agents: HFO,

Panels PUR

- XFN 150 as a **booster**, replacing gelling-catalyst. On top, it brings its usual beneficial points (anti-fire, strength).



Blocks PUR

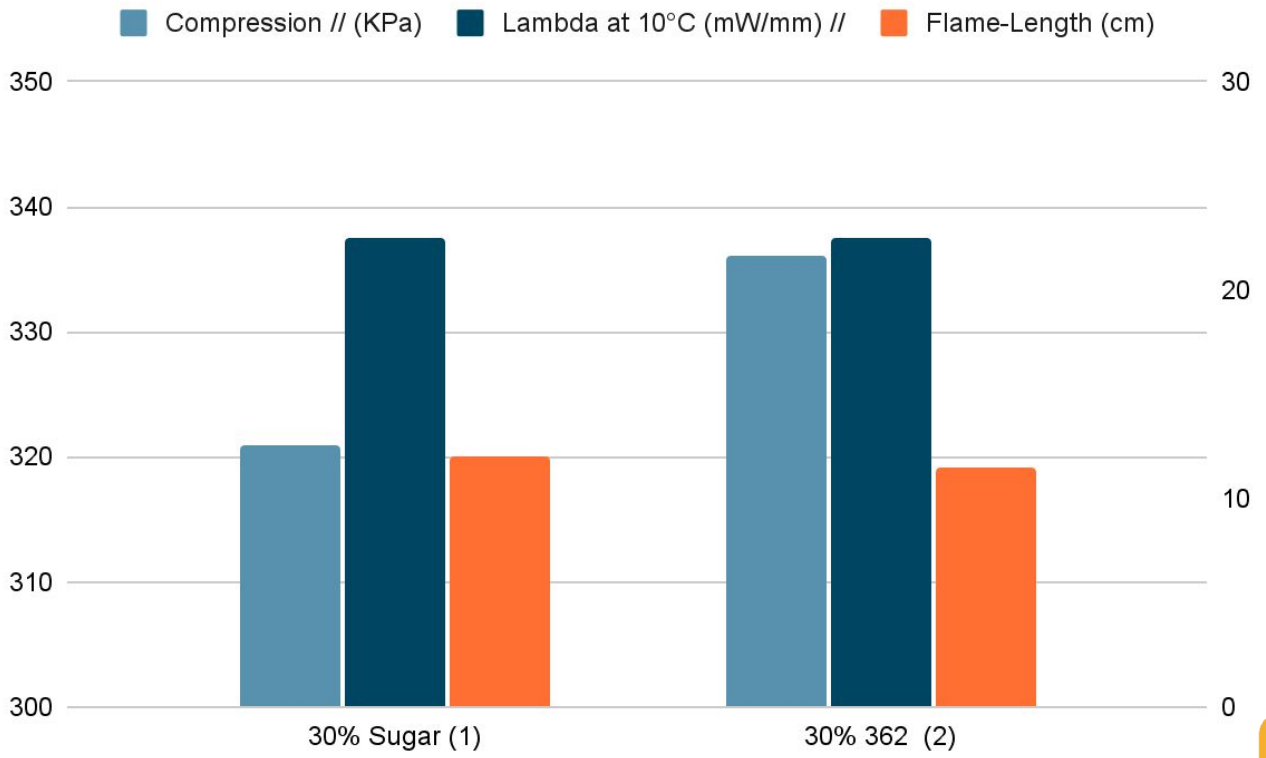
- XFN 50 as a **replacement for traditional polyethers**.

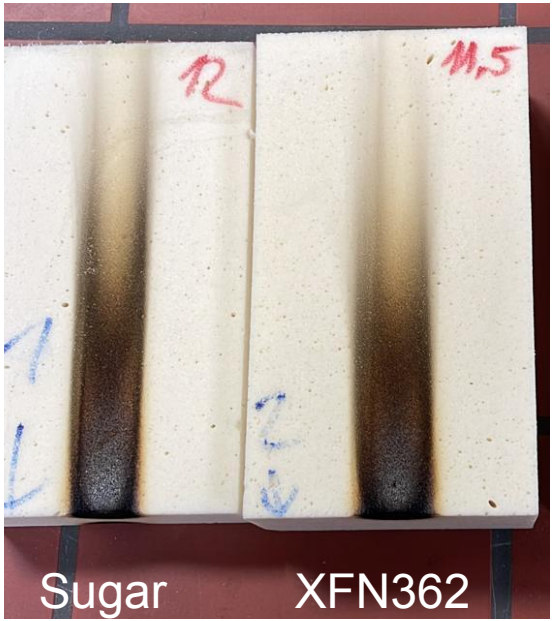
  It improves anti-fire and maintain strength .

  It has shown to improve

ExaPhen

XFN 362 in PUR, low color solution with high sustainability and performance





ExaPhen

Non-Ionic Linear Aromatic C15	HLB	Activity	Cloud Point °C	Solubility in Water 20°C	1% in mineral oil	1% in PAG	Foaming in water
XFN Cardapol F	8.4	100%	<20	Disp.	Sol.	Sol.	Low
XFN Cardapol K	12.5	100%	70	Sol.	Insol.	Sol.	Medium
XFN Cardapol 1546B	-	90%	65		Insol.	Sol.	Low
XFN Cardapol 250-50	18	50%	>100		NA	NA	NA

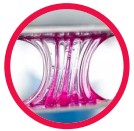
Anionic Linear Aromatic C15	Acid Value	Pour Point °C	Solubility in Water 20°C	Solubility in dearomatized hydrocarbon	Solubility in 0.5% aqueous triethanolamine
XFN Cardapol LP1530	45-55	< 0°C	Disp.	Sol.	Sol.
XFN Cardapol 1741	na	< 0°C	Sol.	Sol.	Sol.

up to 50% Bio/Recycled

- Biodegradable
- Good Emulsifiers
- Disperse Solids and High MW (rosins, epoxy, pigments)
- Up to 14.5% aromatic content for satisfying wetting properties
- Stable to hydrolysis, at pH 2-13
- Corrosion Inhibition


Drilling


Foams


Adhesives


AgroChem


Coatings


Inks and Dyes

Surfactants : C9 Emulsifiers, Dispersants & Solubilisers

Non-Ionic Linear Aromatic C9	HLB	Activity	Cloud Point °C	Solubility in Water 20°C	Gardner	pH	Foaming in water
3AP10 (r&d)	13.4	100%	77	Soluble	Clear Yellowish	5-8	High
3AP30 (r&d)	16.5	70%	>100				High
3AP4 (r&d)	8.8	100%	55				NA
3AP9 (r&d)	12.8	100%	63				High

Anionic Linear Aromatic C9	Acid Value	Pour Point °C	Solubility in Water 20°C	Solubility in de-aromatized hydrocarbon	Solubility in 0.5% aqueous triethanolamine
LP3AP10 (r&d)	na	< 0°C	soluble	soluble	soluble

up to 48% Bio/Recycled

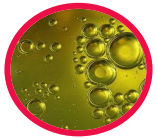
- Biodegradable
- Up to 25% aromatic content for superior wetting properties
- Competitive emulsification
- Competitive solubilisation
- High solids and aromatics dispersion
- Reactive, with no-bloom effect
- Stable to hydrolysis, under pH 2-13
- Clear Color
- No free acidity
- Corrosion Inhibition


Lubricants


Metal-Fluids

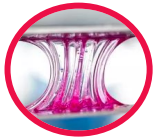

Fatliquoring


Wool Degreasing


Emulsion Polymerisation


Drilling


Foams


Adhesives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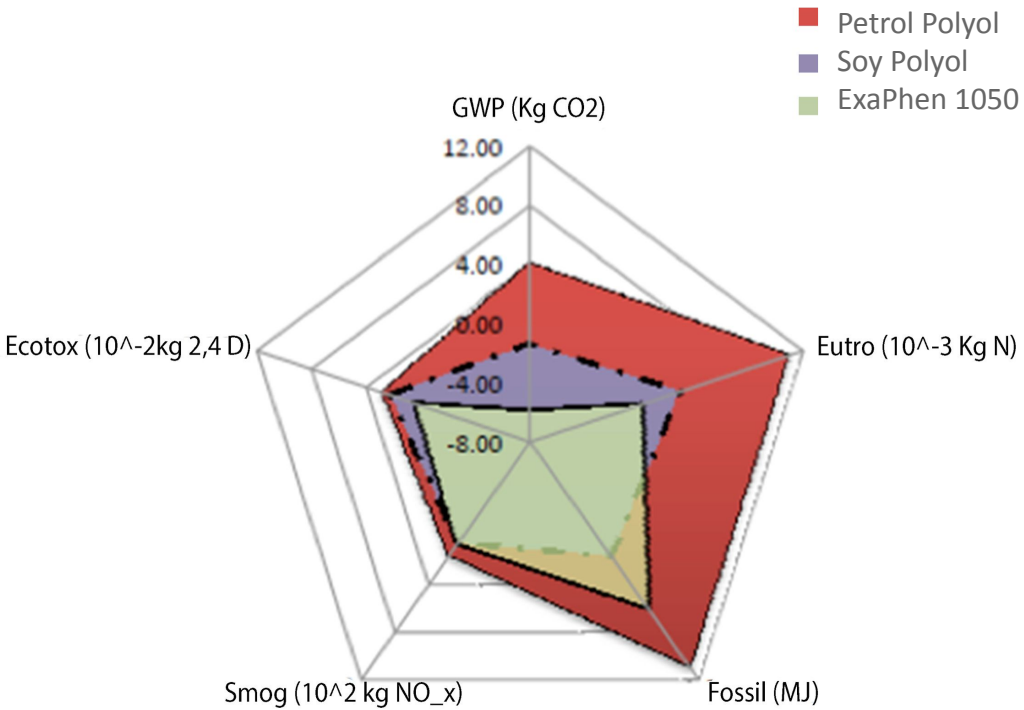
Inks and Dyes



We have run an LCA, in line with the ISO 14040 Series Standards.

Carbon Neutral based on the agro-waste origin - it makes up for the CO2 absorbed during growth!

ExaPhen

Elmira Industrial Supplies ug manufactures in Mumbai (India), strategical for world-supplies.
With our distribution network we are able to serve you rapidly across Europe.

Distributors

FINCO srl
(Rubber, Foams, CASE)
www.fincosrl.it

ExaPhen