

NOVOLACS, POLYOLS & SURFACTANTS

AROMATIC CHEMISTRY FROM THE SHELLS OF CASHEW-NUTS:

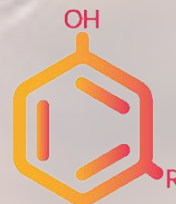
A RENEWABLE AND NON-FOOD RESOURCE.

Elmira Industrial Supplies ug

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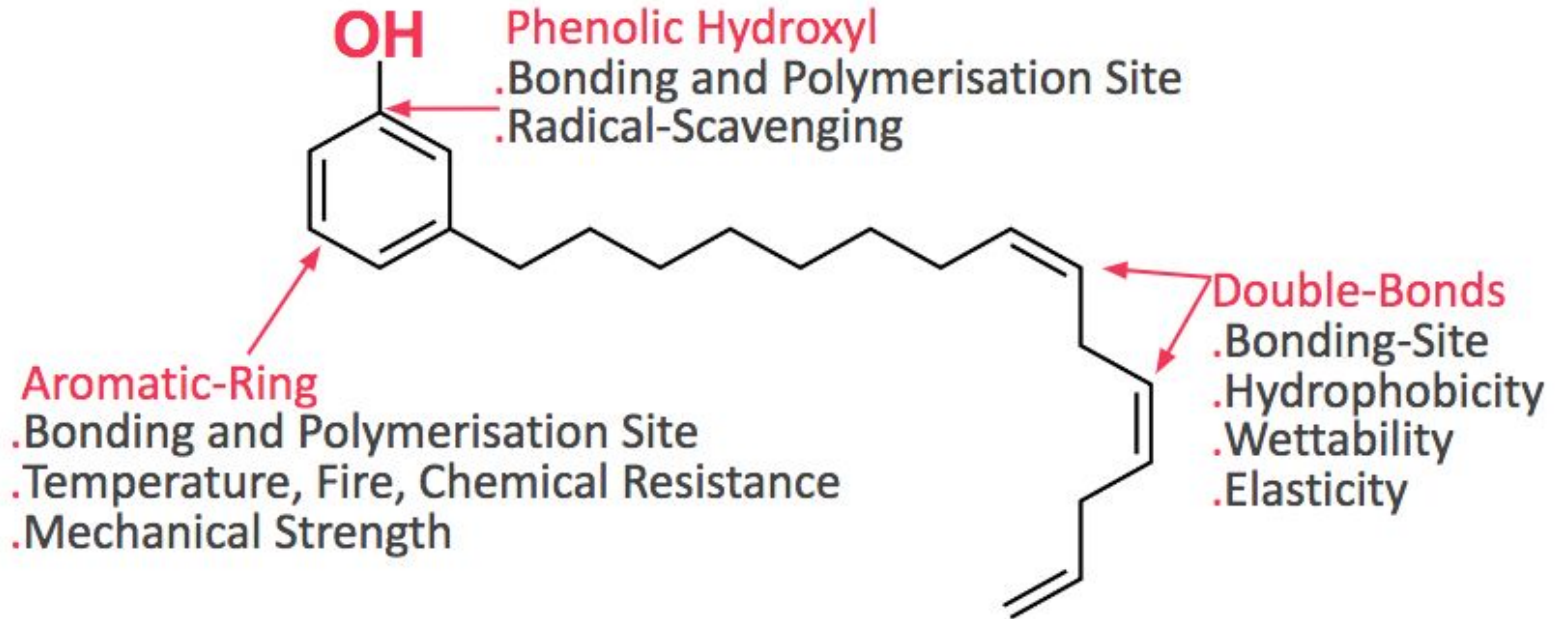
www.elmira.co.uk



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 CO₂ 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 PolyPhenolic Novolac	295-318	1,000	Insoluble	14-18	4, Phenolic OH	28
XFN 1400 PolyPhenolic Novolac	295-318	30,000		14-18	8, Phenolic OH	28
XFN 1400 LV PolyPhenolic Novolac	187-201	3,000		14-18	8, Phenolic OH	23
XFN 10 Linear Aromatic	295-318	50		6-12	1, Phenolic OH	28
XFN 1450 PolyPhenolic Novolac	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

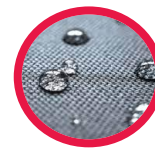


70 to 99%
Bio/Recycled

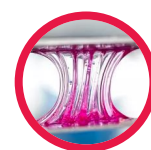
- Non-estrogenic
- Block Isocyanate
- Resin Modification
- For Hardening /Toughening
- Increase Tack
- Improves Resistance to,
 - Corrosion,
 - Adhesion
 - Temperature
 - Fire



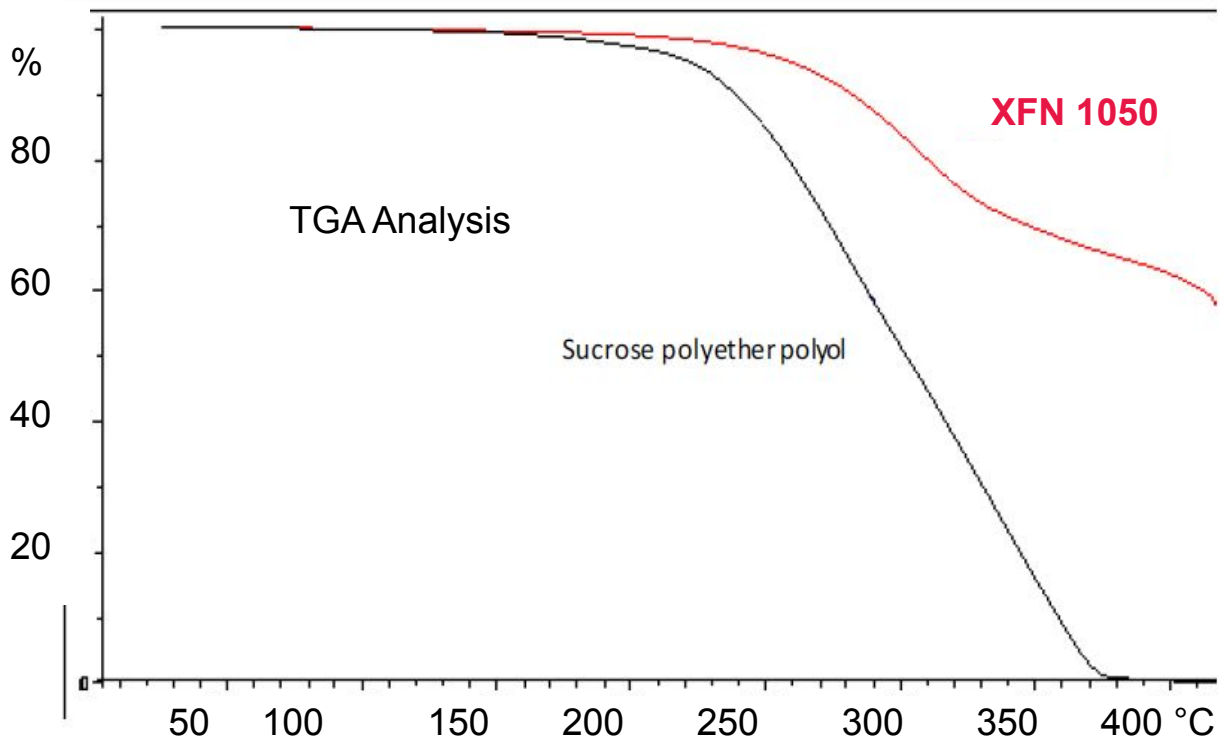
Paints / TopCoats



PUD/Resins



Adhesives / Sealants



Product	OH value (g/eq)	Viscosity cp 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

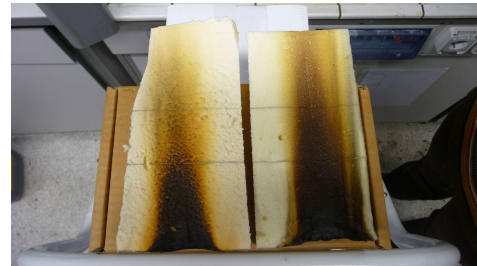
Percentage: 15-20%

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

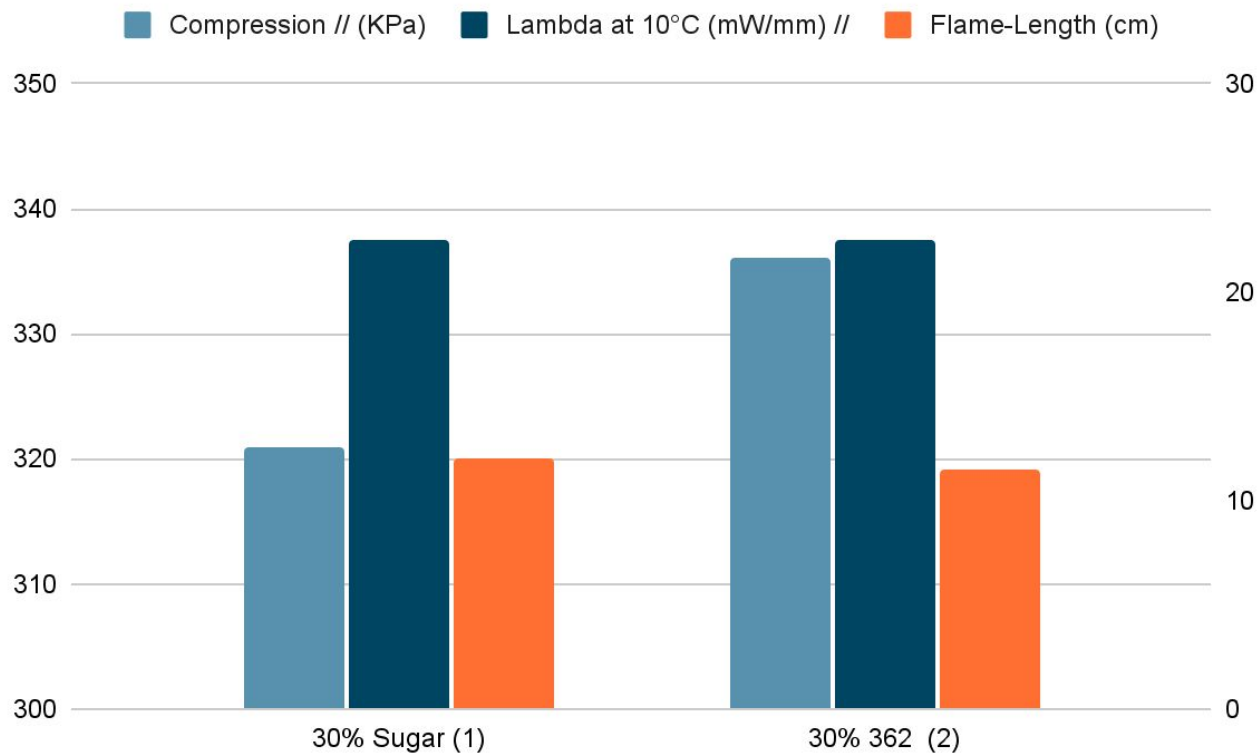
- XFN 50 as a **replacement for traditional polyethers**.

It improves anti-fire and maintain strength .

It has shown to improve



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



Surfactants : C15 Emulsifiers, Dispersants & Solubilisers

Ethoxylated C15 Alkenyl-Phenol	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 M	13.3	100%	75		Insol.	Sol.	Medium
XFN Cardapol 250-50	18	50%	>100		NA	NA	NA

Phosphated C15 Alkenyl-Phenol	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

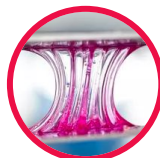
- Biodegradable
- Good Emulsifiers
- Disperse Solids and High MW (rosins, epoxy, pigments)
- Up to 14.5% aromatic content for satisfying wetting properties
- Stable to hydrolysis, at pH 2-13
- Corrosion Inhibition



Drilling



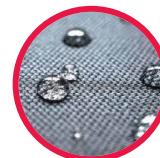
Foams



Adhesives



AgroChem



Coatings



Inks and Dyes

Surfactants : C9 Emulsifiers, Dispersants & Solubilisers

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



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

anionic 3AP	Acid Value	Pour Point °C	Solubility in Water 20°C	Solubility in de-aromatized hydrocarbon	Solubility in 0.5% aqueous triethanolamine
LP3AP10 (under r&d)	na	< 0°C	soluble	soluble	soluble



Lubricants



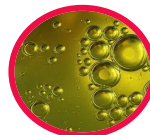
Metal-Fluids



Fatliquoring



Wool
Degreasing



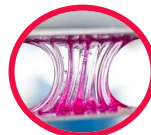
Emulsion
Polymerisation



Drilling



Foams



Adhesives



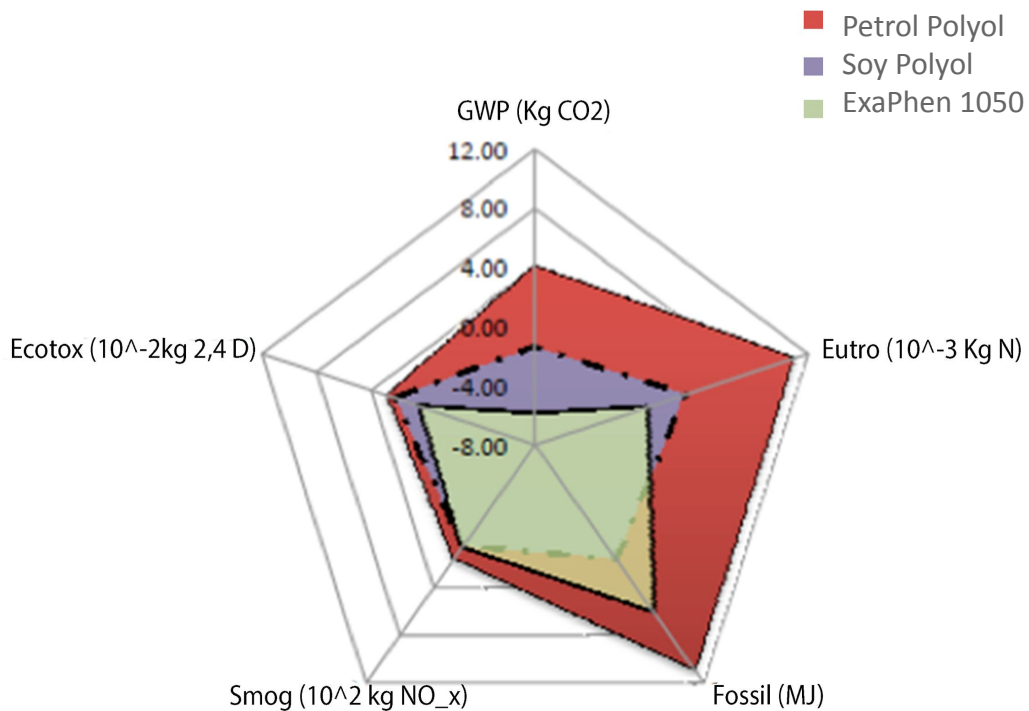
AgroChem



Coatings



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!**



Elmira Industrial Supplies manufactures in Mumbai (India), strategic for world-supplies.

With our distribution network we are able to serve you rapidly across Europe.

