





U.S. Production | Fort Mill, SC

NATION FORD CHEMICAL

- Charleston Port Service
- Convenient to I-77 & I-85
- Rail Access



Family Owned Since 1978 • 80 Employees



ACHIEVED SOCMA'S HIGHEST HONORS





Health & Safety Day

Safety // Improvement Projects

Health // Heart Health Screening

Community // Blood Drive

Safety Participation // Safety Awards Raffle

Employee Commitment // Years of Service Awards

Health & Safety Improvements // Latest Safety Products



Business Units

NATION FORD IMPORTS

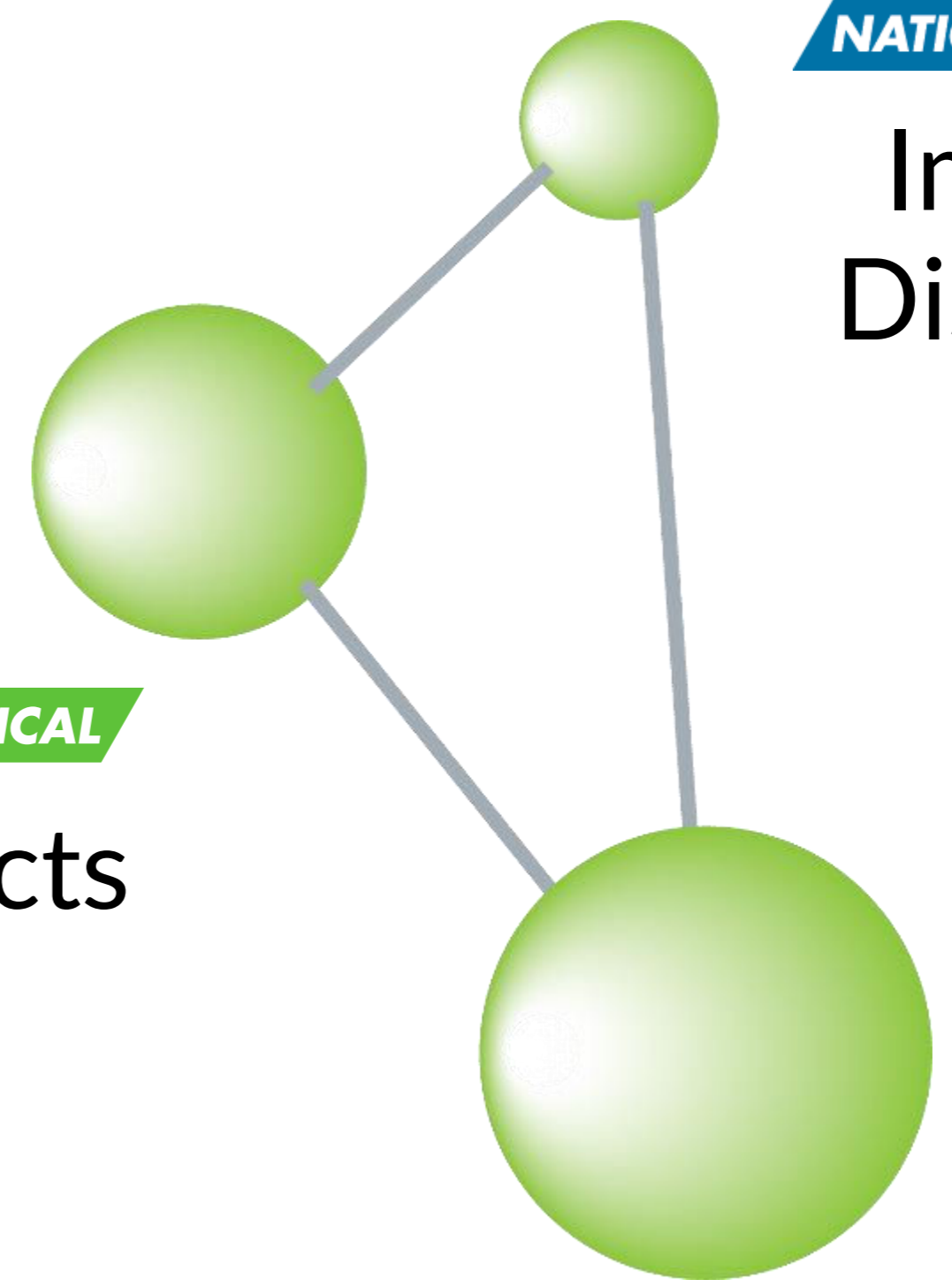
Imports & Distribution

NATION FORD CHEMICAL

NFC Products

NATION FORD CHEMICAL

Tolling Services





PRODUCTS

PANA – Jet Lubricant Additive



Smoke Dyes



Sulfanilic Acid

Worldwide

#1 Producer
Highest Quality

Uses

Pharmaceutical
Yellow Food Dyes
Optical Brightener
Concrete Additive



NFC Four Grades of Sulfanilic Acid

Unpurified
Grade



Technical
Grade

Purified Grades



Pure
Grade



Sodium
Sulfanilate
Powder



Sodium
Sulfanilate
Solution



PRODUCTION & PROCESSES

Custom Chemical Production

- Aniline derivatives
- Ag chems
- Solution polymerization
- Bio-degradable polymers
- Organic intermediates
- Pigments
- Solvent dyes
- Organic oxidations



Tolling Capabilities

- Scale-up from lab or pilot plant
- Commercialization
- Technology transfer
- Strength in engineering
- Process Improvement
- Computer control



Plant Processes

- Reaction chemistry
- Batch and continuous distillation
- High temp and deep vacuum
- Hydrogenation
- Organic intermediates
- Flaking
- Blending
- Repackaging
- Bulk storage and distribution



Reaction Experience

- Acetylation
- Alkylation
- Amination
- Chloroacetylation
- Catalytic Reduction
- Condensation
- Diazotization
- Ethylation
- Friedel-Crafts
- Hydrogenation
- Oxidation
- Polymerization
- Nitration
- Ring Closure
- Sulfonation
- Thiophenylation



Plant Equipment

REACTORS

(many outfitted with solvent recovery capability)

- (3) 6,000 gallon Hastelloy reactor
- (1) 6,000 gallon Furan reactor
- (7) 2,000 gallon glass-lined reactors
- (1) 750 gallon glass-lined reactor
- (1) 15,000 gallon SS reactor
- (1) 12,000 gallon SS reactor
- (3) 6,000 gallon SS reactors
- (3) 4,000 gallon SS reactors
- (1) 3,000 gallon SS reactor
- (9) 2,000 gallon SS reactors
- (2) 1,500 gallon SS reactors
- (1) 1,350 gallon SS reactor
- (1) 1,000 gallon SS reactor

DISTILLATION

High temp and high vacuum
batch and continuous

Many of our reactors are outfitted
with solvent recovery capability.

GRINDING / MILLING / BLENDING EQUIPMENT

- (1) 6' x 6' SS ball mill; heated/cooled
- (1) 8' x 10' SS ball mill; heated/cooled
- (1) ACM air classifying mill
- (1) Pin mill
- (3) Fitzmill grinders
- (2) 250 ft³ SS solids blenders

FLAKING

- 2' x 30' Sandvik SS Belt Flaker
- 48" x 40" Blaw Knox Flaker
- 24" x 60" Buflovak Flaker
(with agitator roller or feed pan)

HYDROGENATION

WIPED FILM EVAPORATION

- 12 sq ft, external condenser
- 50 sq ft, short path

FILTRATION / DRYING

- (4) 7' diameter SS vacuum Nutsche filters
- (1) 48" SS basket centrifuge filter
- (1) 48" Hastelloy basket centrifuge filter
- (6) Sparkler SS pressure leaf filters
- (1) 2' x 7' SS vacuum belt filter
- (1) 308 ft² Hastelloy clad DrM filter
- (1) 672 ft² Hastelloy DrM filter
- (1) 2' x 12' Witte SS fluidized bed dryer
- (1) 1' x 6' Witte SS fluidized bed dryer
- (1) 40 ft³ SS double cone vacuum dryer
- (1) 90 ft³ SS double cone vacuum dryer
- (3) 140 ft³ SS rotary vacuum dryers
- (1) 130 ft² Luwa SS thin film dryer/evaporator
- (1) 43 ft² Pfaudler SS wiped film dryer/evaporator
- (1) 26 ft³ tray dryer

BIO-BASED CHEMICAL SCALE-UP

ON-SITE BULK STORAGE



Utilities

- 125 psig/175°C steam
- 650°F/340°C hot oil
- Cooling water
 - River water
 - Chilled water, 15°C
 - Glycol chilled water, -12° C
- Vacuum <10 torr
- On-site wastewater treatment
- Bulk cryogenic liquid nitrogen



Hebei Nation Ford

Office in Shijiazhuang

Purchasing Chinese Intermediates for NFC use

Low overhead/
Competitive prices



Distribution

- Aniline
 - Drum, Tank Truck, ISO, Rail
- 1-Naphthol
 - 25kg, 500kg bags, molten
 - Technical & Pure Grades

NATION FORD CHEMICAL

BOOTH 202

