



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Partnering With

~~The Use of Custom Mixers to
Improve Compound
Consistency~~

***Charlie Braun, President
Custom Rubber Corp.***



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Custom Rubber Uses Numerous Custom Mixers

- **Custom Rubber is manufacturer of molded and extruded rubber parts**
 - Solutions-orientation
 - Average >12% revenue growth / year since 1980
 - 100+ customers across spectrum of industries
 - >250 jobs every year
 - Process >6 polymers and hundreds of formulae
 - Use ~8 custom mixers, over 20 chemists



RESPONSIVENESS-FROM DESIGN TO DELIVERY

For Us, Integrated Operation Is Not Cost Effective

- **Integrated custom mixing would have some benefits**
 - Control, confidentiality, access information, less 'hold up'
- **But the drawbacks likely outweigh the benefits**
 - Custom mixes typically are high variability, low frequency product
 - High capital cost
 - Complex materials purchasing
 - No market competition, so quality can suffer
 - Numerous chemists required



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Custom Mixing and Compounding Costs are High

“We estimate that to have our lab certified, we spend \$250-\$300K, and then you need to add to that the ongoing costs of certification and maintenance, plus hiring and retaining staff. Most companies cannot afford to carry that kind of cost.”

-Tom Lennox, VP of Sales & Marketing, Biltrite Industries, 4/06

“If you’re looking at mixing capabilities to do 450 or 500 lb. batches, you’re looking at \$2-5 million investment depending on the system you want. You need to buy or rebuild a mixer, add a sub station, get electrical power, do the construction, get a take-off line and cooling line, and more.”

-Marian DeVoe, President, Chardon Rubber, 4/06



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Using Custom Mixers Offers Us Additional Advantages

- **By using custom mixers, we offer more than just low cost to our customers**
 - Solutions to Customer Problems
 - Improved Service / Consistency
 - Innovative Compounds & Mixing Technologies



Color coded Electrical Connector for 1,000 Amp, Spark-proof Application

To Be Successful, You Need To Partner With Your Custom Mixer



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Keys to Partnership

- **Partnership best practices include**
 - ✓ **Source specifically**
 - ✓ **Price & contract for what you want/need**
 - ✓ **Grow the relationship**



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Partnership Best Practices Will Lead to Success

- **Partnership best practices include**
 - ✓ **Source specifically**
 - **Source from many mixers, using each for their very specific skill set**
 - **The chemists are critical: review their specific background, learn about past experiences, insure direct access**
 - **Maintain and update database of compounds and mixers**
 - Price + contract for what you want/need
 - Grow the relationship



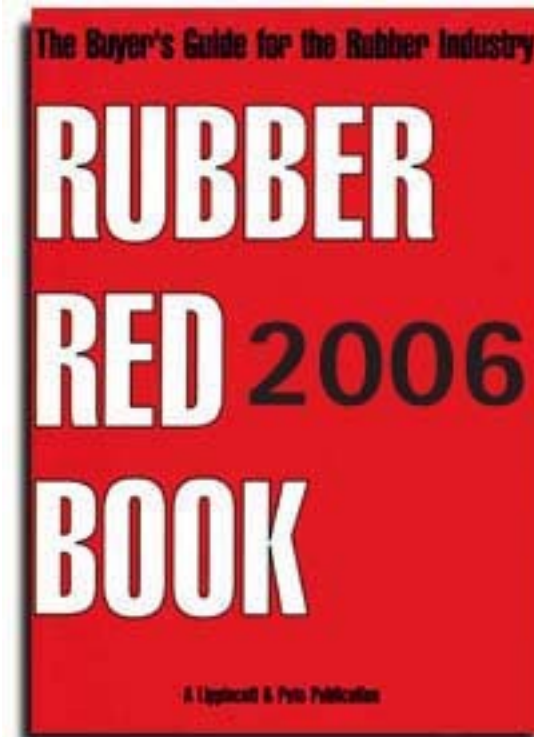
RESPONSIVENESS-FROM DESIGN TO DELIVERY

RMA and "Red Book" Are Best Sources



RUBBER
manufacturers
association

- RMA provides opportunities for networking
 - The best source for a good supplier is a referral





RESPONSIVENESS-FROM DESIGN TO DELIVERY

Database of Compounds & Mixers is Valuable

INQ.13

Custom Rubber Corporation

05/11/06

*** RAW MATERIAL/DUROMETER INQUIRY ***

DUROMETER: 60 KEYWORD: EPDM

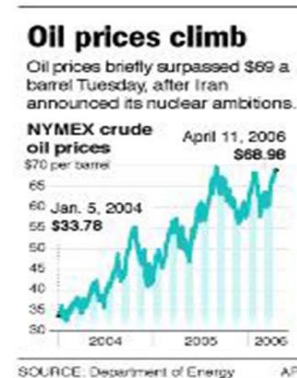
RAW MATERIAL & DESCRIPTION		STD COST	ON HAND	ON ORD	USAGE
CMPND01	60 +/-5 DURO EPDM (3220)	0.0000	0	0	0
CMPND02	60 DURO EPDM STRIP	0.0000	0	0	0
CMPND03	60 DURO EPDM	0.0000	12	0	0
CMPND04	60 DURO EPDM SLAB CUR IN	0.0000	0	0	0
CMPND05	60 DURO EPDM	0.0000	0	0	0
CMPND06	60 DURO EPDM GRAY FOR	0.0000	0	0	0
CMPND07	60+/-5 DURO EPDM BLK INJ (-01)	0.0000	0	0	1,318
CMPND08	60+/-5 DURO BLK EPDM STRIP	0.0000	403	1,000	1,198
CMPND09	60+/-5 DURO EPDM BLK I	0.0000	0	0	0
CMPND10	60+/-5 DURO EPDM BLK I	0.0000	184	0	0



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Need to Partner with Mixer

- Partnership best practices include
 - Source specifically
 - ✓ Price and Contract for what you want/need
 - Cost of compound vs. cost of production
 - Blanket P.O.'s vs. spot buy pricing
 - Trial batches & experimentation
 - Ownership of recipe / exclusivity
 - Lab certifications for material
 - Grow the relationship





RESPONSIVENESS-FROM DESIGN TO DELIVERY

Need to Partner with Mixer

- **Partnership best practices include**
 - Source specifically
 - Price for what you want
 - ✓ **Grow the relationship**
 - Visit the facility
 - Get the chemists involved in customer specifications early
 - Give them information on production process and product configuration



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Story of Custom Mixer Difficulty

REAL WORLD EXAMPLE #1

- “General Rubber Mixing Co” *[name disguised]*
 - Opportunity to make a non-marking, low durometer, white bumper
 - Turned to our first and (at the time) only supplier
 - Decided to use them for color because they were very dependable supplier in general
 - Colors inconsistent batch to batch
 - Customer very unhappy; way behind on orders
 - This is what started our foray into additional custom mixers



We Could Have Avoided This

REAL WORLD EXAMPLE #1

- ✗ Source specifically
 - ✗ Didn't source for specific skill set
 - ✗ Didn't consider chemist's background
 - ✗ Didn't maintain any database
- ✓ Price + Contract for what you want
 - ✗ Didn't consider total cost of inconsistent color and low durometer processing
 - Used spot buy pricing because of low volume
 - Partnership did contain costs for trials and experimentation
 - Partner retained ownership of recipe
 - Material lab certifications were not required
- ✓ Grow the relationship
 - Visited the facility
 - Got chemists involved in customer specs. early
 - Gave chemists information on production process

If we had followed these best practices, we could have avoided a very unhappy customer and (at the time) strained supplier relationship



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Story of Custom Mixer Difficulty

REAL WORLD EXAMPLE #2

- **“Beta Mixing Corporation”** *[name disguised]*
 - Hypalon electrical connector
 - Our customer changed spec / requirement
 - Part had to be self lubricating
 - Original mixer could never get it to be self lubricating in production
 - Eventually turned to an alternate partner
 - Three months wasted
 - Our customer frustrated and unhappy



RESPONSIVENESS-FROM DESIGN TO DELIVERY

We Didn't Execute Our Own Best Practices

REAL WORLD EXAMPLE #2

- ✗ Source specifically
 - Tried to source specifically for color mixing
- ✗ Due diligence didn't include review of chemists' specific background - not strong enough with Hypalon
 - Had a database of compounds and mixers
- ✓ Price + contract for what you want
 - Considered total cost
 - Used spot buy pricing because of low volume
 - Partnerships significantly reduced the cost of trials and experimentation
 - Mixers retained ownership of recipe
 - Material lab certifications were not required
- ✗ Grow the relationship
 - ✗ Didn't visit the facility early enough
 - Gave chemists customer specification
 - ✗ Didn't give chemists information on production process and configuration

If we had followed these best practices, we could have saved 3 months of product development time



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Story of Custom Mixer Excellence

REAL WORLD EXAMPLE #3

- **Acme Rubber Mixing/Pinnacle Mixing/Best Mixers**

[name disguised]

- Our customer in the voice/data over IP industry
- Needed three types of rubber
 - Partially conductive EPDM
 - Low cost EPDM
 - High grade Nitrile
- Needed all this in two months
- We sourced each type from specific custom mixer
 - Batches and experimentation
 - Low “total cost” mentality
 - Selected based on chemists expertise



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Used Best Practices and it Paid Off

REAL WORLD EXAMPLE #3

- ✓ **Source specifically**
 - ✓ Sourced from many mixers, used each for their very specific skill set
 - ✓ Went to three chemists, each with specific background for material in question
 - ✓ Used our database to identify these chemists/mixers
- ✓ **Price + contract for what you want**
 - ✓ Considered cost of compound and cost of production
 - ✓ Spot buy pricing while project is developed
 - ✓ Required a number of trials & experimentation
 - ✓ Mixers retained ownership of recipe
 - ✓ Material lab certification were provided
- ✓ **Grow the relationship**
 - ✓ Visited the facility
 - ✓ Got the chemists involved in customer specs. early
 - ✓ Gave them information on customer so they took ownership

We followed the best practices. Now, we look like experts, and our customer is happy and has given us all their additional products.



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Best Practices Simple; Execution is Key

- **Need to Execute on All of These Best Practices For Success**
 - ✓ Source specifically
 - ✓ Price + contract for what you want
 - ✓ Grow the relationship
- **All organizations are more consistent when they are doing things they are good at and focused on. Custom Mixing is no different.**



RESPONSIVENESS-FROM DESIGN TO DELIVERY

Growing Our Mixer Relationships Has Paid Off

“Custom Rubber is a reliable long term customer. Not only are they refreshingly progressive, but they have put in place great systems that really help the relationship.”

-Marian DeVoe, President, Chardon Rubber, 4/06