

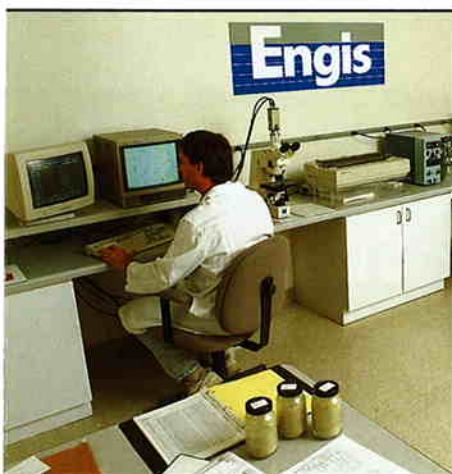
DIAMOND PRODUCTS



HYPREZ® Diamond Powders, Compounds & Slurries



Hyprez Diamond Powders



Hyprez Diamond Powders from Engis are available in a wide variety of diamond types, sizes and shapes. There is, however, one trait common to each and every lot. Quality. Hyprez Quality.

At Engis, we micronize our diamond powders to exacting specifications. Our micronizing process begins by selecting only the finest diamond feedstocks. We use a special double-grading process to ensure that our diamond meets the demanding Hyprez quality and repeatability criteria. Each lot of Hyprez diamond powder processed is individually checked for size, shape and cleanliness.

A strict particle analysis is then performed, yielding documentation on the individual lots, which is kept on record. This comprehensive

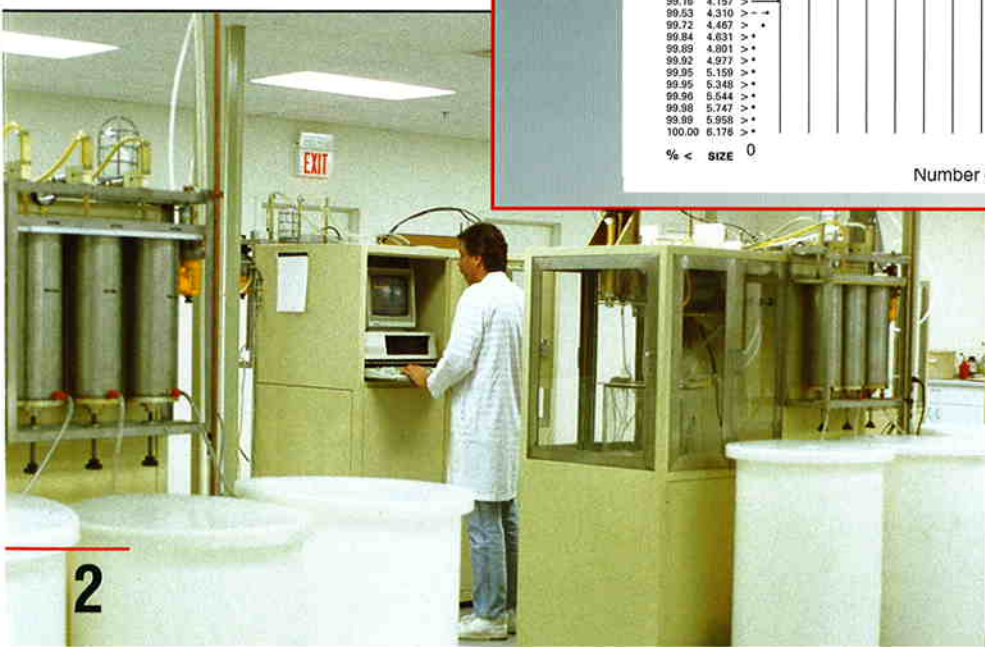
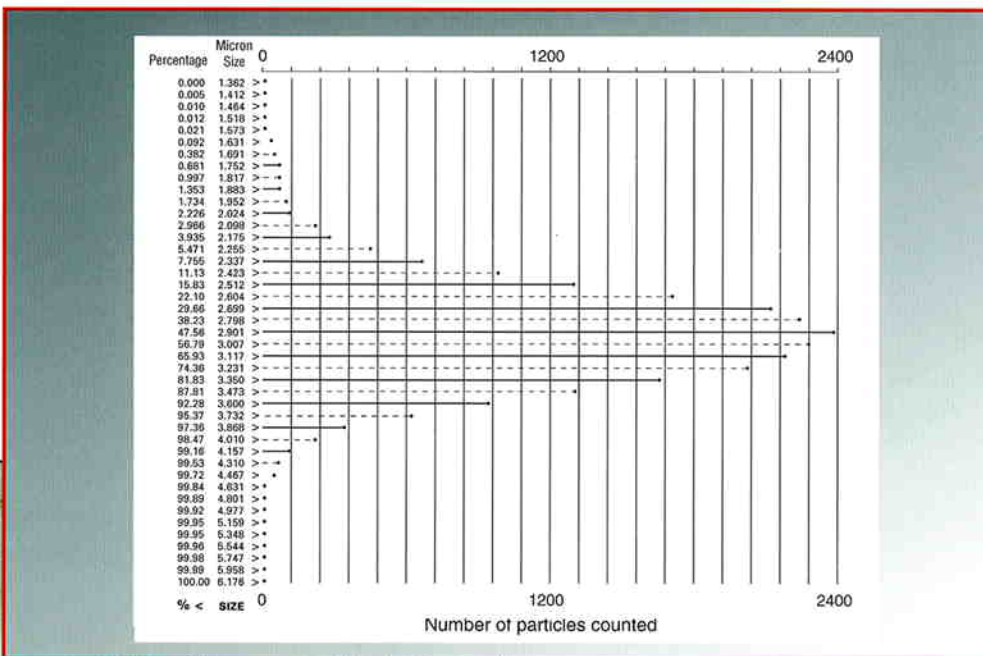
documentation is made available to our customers for their own incoming quality control.

Hyprez Diamond Powders

- Milled, shaped and double-graded to exact specifications
- Wide variety of diamond types, micron sizes and shapes
- Comprehensive quality control
- Extensive customer documentation & verification

Diamond Particle Size Distribution Chart

Right: The tight bell-shaped curve of this typical Grade 3 PSD (particle size distribution) chart verifies the extremely precise micron ranges generated by Engis' sophisticated diamond grading technology. The two columns along the vertical axis indicate the percentage of particles occurring in each micron size range. The numbers along the horizontal axis indicate the number of particles counted in each size range.



Left and top: The proprietary processing techniques used in our grading laboratory ensure consistent, reliable quality for each batch and lot of Hyprez diamond powder.

Typical Applications

Grinding

Tungsten carbide tools, ceramics, glass, cermets, PCD tools

Lapping

Carbide & diamond wire drawing dies, glass components, metal seals

Polishing

Ceramic and carbide valve seats and seals, optical components, precious & semi-precious stones

Superfinishing

Semiconducting crystals & substrates, magnetic read/write heads, electro-optical materials

Hyprez Virgin Natural

A strong blocky shape with irregular surfaces characterizes this diamond particle, long recognized for its aggressive stock removal and ability to produce superior surface finishes.

Hyprez MA

A manufactured monocrystalline structure processed to produce a blocky shape. Hyprez MA has come to be recognized as an economical alternative to natural diamond. It provides aggressive stock removal and excellent finishes.

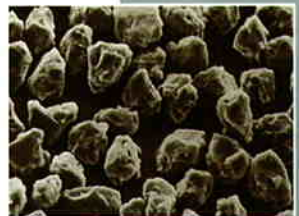
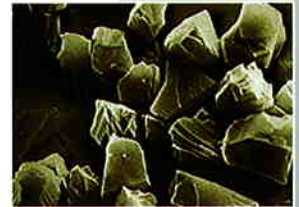
Hyprez PC

A polycrystalline synthetic structure more rounded in shape, Hyprez PC has friability characteristics that allow it to cleave under pressure, revealing fresh cutting surfaces. It produces excellent finishes on harder materials, such as sapphire.

Hyprez BA*

BA diamond has a more irregular shape than MA diamond. When the application does not require a high precision premium grade, BA is often the best economical option.

* Available only as a diamond powder.



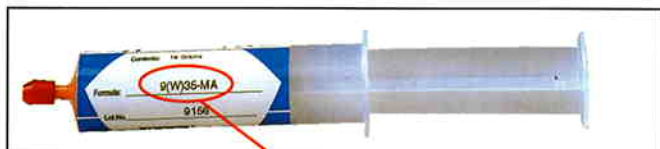
Orders for Hyprez diamond powders are filled to each customer's exact specifications, in terms of diamond type, size and carats required.

Hyprez Diamond Compounds

Hyprez Diamond Formulas are enhanced products of the highest quality, the result of Engis' deep understanding of diamonds. Our expertise on how to mill, shape and grade diamonds of various types and friabilities is unmatched. Coupled with this experience is our knowledge of chemistry, compounding techniques,

carrier formulations and concentration factors.

This wealth of technical know-how, combined with our ISO 9002 certified quality systems, have made Hyprez the most trusted name in diamond compounds throughout the world.



Understanding Our Codes for Compounds & Slurries

9 (W) 35-MA

**The type of diamond used in the formula:
MA (monocrystalline), PC (polycrystalline)
or NAT (virgin natural).**

Diamond concentration shown by a code number, or by MED (medium), STD (standard) or STR (strong)

Carrier -- (W) water soluble, (OS) oil soluble, or special formula

Micron size of diamond in the compound or slurry

If you would like assistance in placing your order, simply call Engis at 1-800-99-ENGIS.



A comprehensive range of Hyprez Diamond Compounds has been developed to meet all the variables involved in lapping and polishing, including:

- Speed of equipment
- Hardness of the laps
- Material being processed
- Working pressure applied to parts
- Amount of stock to be removed
- Size of area involved

By using the proper Hyprez compound, in conjunction with the appropriate lapping and polishing machines, plates and accessories, you can be assured of consistent, repeatable results of the highest quality.

Engis application engineers and technical sales representatives will gladly assist you in any way possible. Simply give us a call.



Engis carries a wide selection of Hyprez diamond compound in stock for timely delivery.

Compounds For Every Application



Hyprez Five-Star®

Combines the excellent cutting characteristics of natural diamonds with the durability of manufactured diamonds, into an all-purpose, precision blend.



Hyprez Formula L

For use on harder materials, such as tungsten carbide tooling and ceramics, as well as coarse lapping on natural metal and Hyprez special composite laps.



Hyprez W Compound

Water soluble formula that cleans easily from the workpiece. Suitable for high luster polishing. Used extensively in mold polishing and die finishing.



Hyprez OS Compound

Oil-based formula absorbs more abraded material and is self-lubricating. Also ideal for rapid stock removal operations using oil-based lubricants.



Hyprez Specialty Compounds

Custom formulations engineered to meet special application requirements. Diamond concentrations and carrier chemistry tailored to the task.



Hyprez Diamond Die Compounds

Very heavy concentrations of diamond, sold by the carat instead of the gram. Used with wire polishing and ultrasonic machines.

Hyprez Five-Star®

Manufactured & Natural Diamond Blend

Hyprez Five-Star is a universal compound for use in virtually all applications. It is the first diamond compound to combine the excellent cutting ability of natural diamonds and the extended durability of manufactured diamonds — in a precision blend that assures faster cutting and long service life.

Proven Formulation

One of the world's most widely used diamond compounds, Hyprez Five-Star is formulated to withstand severe lapping conditions without loss of cutting quality. The use of a stable carrier assures sustained particle suspension throughout the process cycle.

Better Coverage

Hyprez Five-Star compound's unique blend of natural and manufactured diamonds also provides more surface coverage and improved impregnation of laps.

2-Way Solubility

Five-Star diamond compound can be used with Hyprez OS Type IV (oil soluble) or Type W (water soluble) lubricants to meet specific requirements of material and surface finish.

Micron Size	Product Code Concentration	Compound Color	Application
1/10	1/10-FS-480 1/10-FS-475	Grey	Final Polishing
1/4	1/4-FS-480 1/4-FS-475	Grey	
1	1-FS-48 1-FS-47 1-FS-45	Blue	
3	3-FS-48 3-FS-47 3-FS-45 3-FS-40	Green	
6	6-FS-45 6-FS-42 6-FS-375	Yellow	Lapping and Pre-polishing
8	8-FS-40 8-FS-375 8-FS-35 8-FS-30	Red	
14	14-FS-40 14-FS-35 14-FS-30	Brown	
25	25-FS-40 25-FS-35 25-FS-30	Mahogany	Rapid Stock Removal
45	45-FS-40 45-FS-35 45-FS-30	Purple	
60	60-FS-30 60-FS-25	Orange	
90	90-FS-30 90-FS-25	White	



New & Improved Hyplicator®

The Hyplicator, designed to prevent waste and contamination while precisely metering each application of compound, has been improved in several ways. Among its features:

- Easier to hold
- More comfortable to use
- Fixed grip length
- Precision metering dial

Lubricant

Use OS Type IV (oil soluble) or W (water soluble) lubricant.

Available Packaging

• 5-gram Hyplicator (standard packaging) • Other packaging available on request.

Concentration

For concentration recommendation, consult your Engis representative.

ORDER EXAMPLE

3-FS-45 — 20 grams in 5-gram Hyplicators.

Hyprez Formula L

For Tungsten Carbide, Hard Metals & Ceramics

Hyprez Formula L diamond compounds are specially formulated for use with harder materials. Typical applications include finishing tungsten carbide tooling, rolls and balls, ceramics and coarse lapping on Hyprez natural metal and special composite laps.

Proven Formulation

Hyprez Formula L is a uniform diamond particle suspension which is not affected by

dilution. The compound can be thinned to any desired consistency with Hyprez OS Type IV and Hyprelube lubricants. It utilizes a special chemical carrier with increased surface tension to improve lap adhesion.

Withstands Frictional Heat

The consistency of Hyprez Formula L is not affected by frictional heat generated during use. Only minimal lubrication is required for optimal results.

Hyprez compounds are available in 5-gram dip jars.



All grades of Hyprez compounds are available with Hyprez monocrystalline (MA), polycrystalline synthetic (PC) and virgin natural (NAT) diamond.

Formula L Compound Grade	Micron Size Range	Approximate Mesh Size Comparison	Color Code Identification	Diamond Concentration
1/10-L-MA 1/4-L-MA 1/2-L-MA	0-1/5 0-1/2 0-1	240,000 100,000 60,000	Grey Grey Grey	Standard Standard Standard
1-L-MA	0-2	14,000	Ivory	Medium Standard Strong
2-L-MA	1-3	11,000	Light Yellow	Medium Standard Strong
3-L-MA	2-4	8,000	Yellow	Medium Standard Strong
6-L-MA	4-8	3,000	Orange	Medium Standard Strong
9-L-MA	6-12	1,800	Green	Medium Standard Strong
15-L-MA	10-20	1,200	Blue	Medium Standard Strong
30-L-MA	22-36	600	Red	Medium Standard Strong
45-L-MA	36-54	325	Brown	Medium Standard Strong
60-L-MA	54-80	270	White	Medium Standard Strong
230-L-MA	Mesh	230	Purple	Medium Standard Strong
170-L-MA	Mesh	170	Grey Black	Medium Standard Strong
100-L-MA	Mesh	100	Black	Medium Standard Strong

Lubricant

Use Hypretube or OS Type IV (oil soluble).

Available Packaging

• 5-gram & 18-gram plastic syringe • 5-gram dip jars • Hyplicator by request
• Other packaging available.

Concentration

Medium, standard and strong concentrations are normally available.
Other concentrations are available on request.

ORDER EXAMPLE

9-L-MED-MA — 20 grams in 5-gram syringes.

Hyprez W and OS



All grades of Hyprez compounds are available with Hyprez monocrystalline (MA), polycrystalline synthetic (PC) and virgin natural (NAT) diamond.

Hyprez W Compound

A water-soluble formula that cleans easily from the workpiece, Hyprez W is recommended for areas requiring a very high luster, but which might be affected by an oil-base compound.

Hyprez W was the first commercially successful diamond compound. Formulated by Engis, it is still in general use by the die and mold industry and for precision hand lapping. For additional lubrication, use W lubricant.

Hyprez OS Compound

This oil-based formula perfectly complements Hyprez W. It is especially popular in lapping areas where oil base lubricants help provide faster cutting action. It absorbs more abraded material and is self-lubricating. However, when additional lubricant is desired, use OS Type IV lubricant for best results.

Classifications For General Use	W Compound Grade	OS Compound Grade	Micron Size Range	Approximate Mesh Size Comparison	Color Code Identification	Diamond Concentration
For Operations Requiring Precise Finishes And Tolerances	1/10-W-475-MA	1/10-OS-475-MA	0-1/5	240,000	Grey	Standard
	1/4-W-475-MA	1/4-OS-475-MA	0-1/2	100,000	Grey	Standard
	1/2-W-475-MA	1/2-OS-475-MA	0-1	60,000	Grey	Standard
Final Finishing Grades For Most Molds, Dies, Flat Lapping And Assorted Production Lapping	1-W-48-MA	1-OS-48-MA	0-2	14,000	Blue	Medium Standard Strong
	1-W-47-MA	1-OS-47-MA				
	1-W-45-MA	1-OS-45-MA				
	2-W-48-MA	2-OS-48-MA	1-3	11,000	Light Green	Medium Standard Strong
	2-W-47-MA	2-OS-47-MA				
	2-W-45-MA	2-OS-45-MA				
	3-W-45-MA	3-OS-45-MA	2-4	8,000	Green	Medium Standard Strong
	3-W-40-MA	3-OS-40-MA				
	3-W-35-MA	3-OS-35-MA				
	6-W-42-MA	6-OS-42-MA	4-8	3,000	Yellow	Medium Standard Strong
	6-W-375-MA	6-OS-375-MA				
	6-W-30-MA	6-OS-30-MA				
Grades Most Commonly Used As First Step In Finishing Carbides, Steels And Production Lapping	9-W-40-MA	9-OS-40-MA	6-12	1,800	Red	Medium Standard Strong
	9-W-35-MA	9-OS-35-MA				
	9-W-30-MA	9-OS-30-MA				
	15-W-40-MA	15-OS-40-MA	10-20	1,200	Brown	Medium Standard Strong
	15-W-35-MA	15-OS-35-MA				
	15-W-30-MA	15-OS-30-MA				
	30-W-40-MA	30-OS-40-MA	22-36	600	Mahogany	Medium Standard Strong
	30-W-30-MA	30-OS-30-MA				
	30-W-20-MA	30-OS-20-MA				
For Very Fast Stock Removal	45-W-40-MA	45-OS-40-MA	36-54	325	Purple	Medium Standard Strong
	45-W-30-MA	45-OS-30-MA				
	45-W-20-MA	45-OS-20-MA				
	60-W-35-MA	60-OS-35-MA	54-80	270	Orange	Medium Standard Strong
	60-W-30-MA	60-OS-30-MA				
	60-W-25-MA	60-OS-25-MA				
	230-W-35-MA	230-OS-35-MA	Mesh	230	White	Medium Standard Strong
	230-W-30-MA	230-OS-30-MA				
	230-W-25-MA	230-OS-25-MA				
	170-W-35-MA	170-OS-35-MA	Mesh	170	White	Medium Standard Strong
	170-W-30-MA	170-OS-30-MA				
	170-W-25-MA	170-OS-25-MA				
	100-W-35-MA	100-OS-35-MA	Mesh	100	White	Medium Standard Strong
	100-W-30-MA	100-OS-30-MA				
	100-W-25-MA	100-OS-25-MA				

Lubricant

Use W (water soluble) lubricant with W compound
Use OS Type IV (oil soluble) lubricant with OS compound

Available Packaging

- 5-gram & 18-gram plastic syringe • 5-gram dip jars • Hyplicator by request
- Other packaging available.

Concentration

The above compounds are all normally available from stock. Other concentrations are available on request.

ORDER EXAMPLE

15-W-35-MA — 20 grams in 5-gram syringes.

Specialty Compounds

Engis offers a wide range of standard compounds suitable for most applications in today's manufacturing field.

However, new materials or changes in the process environment may require a specialty compound formulation.

Engis' expertise in diamond micronizing, combined with our knowledge of chemistry, compounding techniques and carrier formulations, allows us to serve the ever-changing needs of industry.

When formulating specialty compounds, Engis chemists and process engineers consider all of the aspects of the customer's application that may mandate a change or modification of a compound formulation.

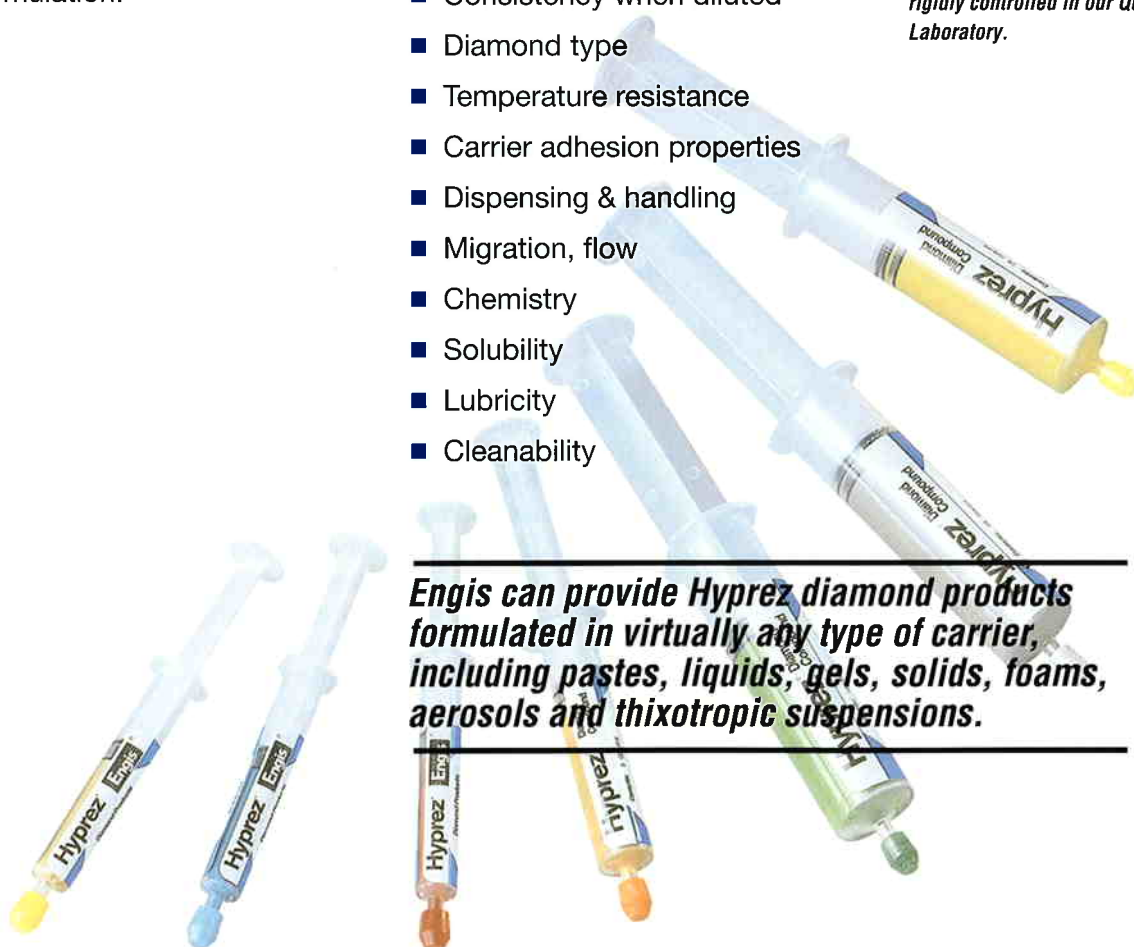


Each Engis specialty compound is a unique blend of carrier chemical formulation, diamond type, size and shape. These characteristics are verified and rigidly controlled in our Quality Laboratory.

Among the variables:

- Diamond concentration
- Consistency when diluted
- Diamond type
- Temperature resistance
- Carrier adhesion properties
- Dispensing & handling
- Migration, flow
- Chemistry
- Solubility
- Lubricity
- Cleanability

Engis can provide Hyprez diamond products formulated in virtually any type of carrier, including pastes, liquids, gels, solids, foams, aerosols and thixotropic suspensions.



Hyprez Diamond Slurries

Engis can provide Hyprez slurries with manufactured monocrystalline, polycrystalline, and virgin natural diamonds.

Formula S1313-T4 (Oil Soluble)

Our most popular oil-based slurry provides superior lap plate wetting and film protection for hard laps such as ceramic, cast iron, aluminum and Series HY composite laps. This oil-based slurry is excellent on most metal and carbide parts, with excellent cleanability. It is especially popular for finishing materials where a highly reflective surface is desired. Additional applications include lapping and polishing some electro-optical, ceramic and metal materials, as well as semiconductor substrates. For additional lubrication, use OS Type IV lubricant.

Formula S4889 (Water Soluble)

S4889 is our most popular alternative to oil-based slurries. It is widely used when processing electronic components, including electro-optical materials, semiconductor substrates, ceramic circuit boards, magnetic read/write heads.

For additional lubrication, use W lubricant.

Formula S841 (Compatible with both Oil and Water Lubricants)

Formula S841 is a superior slurry for polishing, typically as a final step, providing good flatness and surface finish with minimal scratches. An oil/water emulsion, this slurry works well with either Hyprelube or W lubricants and is particularly suited for use with polishing cloths and pads. The S841 slurry maintains dispersion of diamond in the finer micron sizes without settling for long periods of time. It redisperses easily by shaking the bottle for a few seconds. For additional lubrication, use W lubricant on lap plates and Hyprelube on polishing cloths.

Special Formulations and Concentrates

Hyprez Diamond Slurries are available in a variety of oil and water soluble carriers, as well as in concentrates, not listed in this catalog. For more details regarding special formulations, contact the Engis sales department.



Engis diamond slurry processing lab.

Hyprez slurries are available in 100 gram, 400 gram and 3200 gram (1 gallon) containers.



Concentration

Most slurries are available in a variety of concentrations: medium (MED), standard (STD), strong (STR). Special formulations and concentrates are available upon request.

Available Packaging

All Hyprez Diamond Slurries come in both 100-gram plastic bottles for hand application and 400-gram glass bottles for use with the MINIMISER Spray Unit. For continuous, even dispersion of slurries, the Hyprez Autostirrer is recommended. 1 gallon (3200 grams) plastic containers are also available.

ORDER EXAMPLE

2-S4889-STD-MA in 400-gram bottles. Quantity: 10.

Specialty Slurries

Known for its wide range of standard slurries, Engis also offers our customers special formulations of Hyprez diamond slurry.

Some of the factors we take into account when developing specialty slurries include:

- Evaporation rates
- Pressure/heat resistance
- Suspension characteristics
- Solubility (oil base, water base & emulsified carriers)
- Reduction of ion contaminants (For example, chlorides, sulphates, phosphates and nitrates)
- Conductivity
- Slurry concentrates
- Diamond concentration
- Specific gravity
- Viscosity
- pH levels
- Environmental issues
- Shipping issues
- Cleanability
- Dispensing & handling
- Film strength and consistency
- Dilution
- Charging characteristics
- Dispersion characteristics related to diamond
- Compatibility with use of lubricants



All grades of Hyprez slurries are available with Hyprez monocrystalline (MA), polycrystalline synthetic (PC) and virgin natural (NAT) diamond.

See Page 4 for code explanation.

Diamond Slurry Type			Micron Size Range	Approximate Mesh Size Comparison	Color Code Identification*	Diamond Concentration
S4889 Grade	S1313-T4 Grade	S841** Grade				
1/10-S4889-MED-MA 1/10-S4889-STD-MA 1/10-S4889-STR-MA	1/10-S1313-T4-MED-MA 1/10-S1313-T4-STD-MA 1/10-S1313-T4-STR-MA	1/10-S841-MED-MA 1/10-S841-STD-MA 1/10-S841-STR-MA	0-1/5	240,000	Grey	Medium Standard Strong
1/4-S4889-MED-MA 1/4-S4889-STD-MA 1/4-S4889-STR-MA	1/4-S1313-T4-MED-MA 1/4-S1313-T4-STD-MA 1/4-S1313-T4-STR-MA	1/4-S841-MED-MA 1/4-S841-STD-MA 1/4-S841-STR-MA	0-1/2	100,000	Grey	Medium Standard Strong
1/2-S4889-MED-MA 1/2-S4889-STD-MA 1/2-S4889-STR-MA	1/2-S1313-T4-MED-MA 1/2-S1313-T4-STD-MA 1/2-S1313-T4-STR-MA	1/2-S841-MED-MA 1/2-S841-STD-MA 1/2-S841-STR-MA	0-1	60,000	Grey	Medium Standard Strong
1-S4889-MED-MA 1-S4889-STD-MA 1-S4889-STR-MA	1-S1313-T4-MED-MA 1-S1313-T4-STD-MA 1-S1313-T4-STR-MA	1-S841-MED-MA 1-S841-STD-MA 1-S841-STR-MA	0-2	14,000	Ivory	Medium Standard Strong
2-S4889-MED-MA 2-S4889-STD-MA 2-S4889-STR-MA	2-S1313-T4-MED-MA 2-S1313-T4-STD-MA 2-S1313-T4-STR-MA	2-S841-MED-MA 2-S841-STD-MA 2-S841-STR-MA	1-3	11,000	Grey	Medium Standard Strong
3-S4889-MED-MA 3-S4889-STD-MA 3-S4889-STR-MA	3-S1313-T4-MED-MA 3-S1313-T4-STD-MA 3-S1313-T4-STR-MA	3-S841-MED-MA 3-S841-STD-MA 3-S841-STR-MA	2-4	8,000	Yellow	Medium Standard Strong
6-S4889-MED-MA 6-S4889-STD-MA 6-S4889-STR-MA	6-S1313-T4-MED-MA 6-S1313-T4-STD-MA 6-S1313-T4-STR-MA	6-S841-MED-MA 6-S841-STD-MA 6-S841-STR-MA	4-8	3,000	Orange	Medium Standard Strong
9-S4889-MED-MA 9-S4889-STD-MA 9-S4889-STR-MA	9-S1313-T4-MED-MA 9-S1313-T4-STD-MA 9-S1313-T4-STR-MA	9-S841-MED-MA 9-S841-STD-MA 9-S841-STR-MA	6-12	1,800	Green	Medium Standard Strong
15-S4889-MED-MA 15-S4889-STD-MA 15-S4889-STR-MA	15-S1313-T4-MED-MA 15-S1313-T4-STD-MA 15-S1313-T4-STR-MA	15-S841-MED-MA 15-S841-STD-MA 15-S841-STR-MA	10-20	1,200	Blue	Medium Standard Strong
30-S4889-MED-MA 30-S4889-STD-MA 30-S4889-STR-MA	30-S1313-T4-MED-MA 30-S1313-T4-STD-MA 30-S1313-T4-STR-MA	30-S841-MED-MA 30-S841-STD-MA 30-S841-STR-MA	22-36	600	Red	Medium Standard Strong
45-S4889-MED-MA 45-S4889-STD-MA 45-S4889-STR-MA	45-S1313-T4-MED-MA 45-S1313-T4-STD-MA 45-S1313-T4-STR-MA	45-S841-MED-MA 45-S841-STD-MA 45-S841-STR-MA	36-54	325	Brown	Medium Standard Strong

*S4889 is not color coded.

**S841 not available with PC diamond.

Hyprez Lubricants

Importance of Proper Lubrication

Lubricants used with any diamond compound should be compatible with the carrier used to give the best cutting action possible, maintain even dispersion of diamonds and produce uniform finishes. The proper lubricant will reduce lapping time and also reduce the amount of diamond compound needed to complete the lapping operation.

Hyprez Hyprelube®

Hyprelube is a high-penetration lubricant that is both water and oil soluble. Additional benefits include unsurpassed abrasive wetting capabilities and continuous, controlled lubricity. Hyprelube was originally developed for use with both Hyprez Formula L and Diamond Die Compounds, used in the finishing of wire drawing and cold heading dies. Hyprelube also complements the performance of some Hyprez specialty compounds and emulsified slurries.

OS Type IV Lubricant

This low-viscosity, oil-soluble lubricant is compatible with oil-based slurries and compounds, including Hyprez Five-Star, Formula L, Hyprez OS and S1313-T4. In proper concentrations, it is also partially compatible with Hyprez W compound.

W Lubricant

This water-based fluid is slightly thicker than OS Type IV and is compatible with Hyprez W compound and S4889 slurry.

Specialty Lubricants

Engis also formulates custom lubricants to complement specialty compounds and slurries.

W Lubricant



Hyprelube®



OS Type IV
Lubricant



Available Packaging

Hyprez lubricants are available in a variety of containers, including:

- 4 oz. bottles
- 1-gallon plastic bottles
- 1-gallon cans
- 1-pint glass bottles
- 1-quart bottles
- 55-gallon drums
- 1-pint pump spray (not shown) is also available for use with lubricants.

ORDER EXAMPLE

OS Type IV Lubricant in 1 quart bottles. Quantity: 10

Hyprez Dual Stage MINIMISER®/Hyprez Autostirrer

MINIMISER® Spray Unit **Hyprez Dual Stage MINIMISER®** **Electronic Dispensing Unit with** **Digital Display**

Diamond is a premium abrasive. Economies of usage are critical, requiring dispensing accessories that maximize the effectiveness of diamond slurries while minimizing waste.

Both the Hyprez Autostirrer and MINIMISER have been engineered by Engis to do just that, deliver precisely controlled amounts of Hyprez diamond slurry and lubricants. These systems are designed for optimal use on all Hyprez lapping systems.

The EM-1 MINIMISER Electronic Dispenser, with digital readout, incorporates microprocessor based circuitry to provide consistent and repeatable performance, day in and day out. The MINIMISER can be set for an interval cycle up to 999 seconds (16.65 min.) and a spray duration range of 1 to 9 seconds in increments of 1 second.

MODEL EM-1 includes

- 2 — 10" spray head nozzles
- 2 each, empty pint glass bottles
- 2 each, 7 ft. length of plastic hose with quick disconnect coupler

Specifications

- 7-3/4" D x 7"H
- Width: 11-13/16"
- Air Gauge: 0 to 30 PSI
- Mounted on 4 non-skid pads
- 115V standard. 220V available upon request

Hyprez Autostirrer -- ASP-115

This unit stirs and keeps diamond completely dispersed during usage.

Model ASP-115 includes:

- 1 Empty pint glass bottle
- 1 Magnetic spin bar
- 115V standard. 220V available upon request

Minimize waste and maximize the effectiveness of Hyprez diamond slurries with the Hyprez Autostirrer and MINIMISER. The Autostirrer keeps the diamond completely suspended, while the MINIMISER dispenses precise amounts of slurry and/or light lubricants.

The Autostirrer and MINIMISER can be retrofitted to all commercially available lapping machines.



Hyprez Process Development Lab

Hyprez Process Development Laboratory

Staffed by technicians who are experts in diamond flat lapping and polishing, the Hyprez Process Development Laboratory is dedicated to solving customer application problems.

Through the lab, we regularly assist customers by developing new products and processes that utilize diamond-based superabrasives to:

- Shorten cycle times
- Reduce the number of finishing steps
- Lower finishing costs
- Improve precision and performance

The wealth of Engis' diamond finishing expertise is available to you through this laboratory. If you have a special application or processing problem, call or write — giving full particulars. We will be glad to assist you in any way we can.

Applications & Industries

- Data storage/disk drives
- Semiconductor substrates
- Electronic components
- Electro-optical materials
- Mechanical seals/valves
- Automotive components
- Tool & die finishing
- Mold polishing
- Ceramics
- Aerospace



How to Order Hyprez Diamond Compound or Slurry

Our experienced Hyprez staff can fill your orders promptly and accurately. To help prevent errors, the following specifications should be supplied:

Type of Compound:

Indicate whether Five-Star, L, W, OS, Diamond Die or Special Compound formulas are required.

Grade And Concentration:

Specify micron size and concentration. Note that Hyprez formulas are available in MED, STD or STR concentrations, as well as coded number concentrations. See individual product pages for details.

Type of Diamond:

Specify whether MA (monocrystalline), PC (polycrystalline) or NAT (virgin natural) diamond is required.

Type of Slurry:

Indicate whether S1313-T4, S4889, S841, or Special Slurry formulas are required.

Quantity And Packaging:

Hyprez compounds are available in 5 gram and 18 gram syringes or 5 gram jars.

Hyprez slurries are available in 400 gram pint bottles or 100 gram plastic bottles. Larger sizes, such as 3200 gram gallon containers, are available on request.

Order Example:

3-L-STD-MA 20 grams in 5 gram syringes
20 bottles of 6-S4889-STR-MA in 400 gram bottles

Shipment:

Unless otherwise specified, we will ship via UPS.

Minimum order: \$50.00
Terms: Net 30 days
F.O.B. Wheeling, Illinois
1-800-99-ENGIS 1-847-808-9400
Fax: 1-847-808-9430

Grades, types of compound, and concentrations may be combined for best pricing. (See page 4 for code explanations.)

Leaders in Superabrasive Finishing Systems



Engis (UK) Ltd.

Henley-on-Thames
Oxfordshire, RG9 1DS ENGLAND
Tel: 44-1491-411117
Fax: 44-1491-412252
Email: sales@engis.uk.com



Engis Corporation

Wheeling, IL U.S.A.
Tel: (847) 808-9400
Fax: (847) 808-9430
Email: info@engis.com



Engis Japan K.K.

Yokohama, JAPAN
Tel: 81-45-474-0666
Fax: 81-45-474-0677
Email: email@engis.co.jp



Engis Asia Pacific Pte. Ltd.

SINGAPORE
Tel: 65-6745-1923
Fax: 65-6745-2907
Email: sales @engis.com.sg



Engis (Hong Kong) Ltd.

Kwai Chung, HONG KONG
Tel: 852-26100903
Fax: 852-24234509
Email: sales@engis.com.hk



Engis of Canada Ltd.

Burlington, Ontario, CANADA
Tel: (905) 632-3016
Fax: (905) 632-4250
Email: engiscanada@engis.com

THE ENGIS GROUP OF COMPANIES



Engis (H.K.) Ltd., Beijing R.O.

Beijing, CHINA
Tel: 86-10-64848398
Fax: 86-10-64848396
Email: lianjie@engis.com.hk



Helical Lap & Mfg. Company

Fraser, MI U.S.A.
Tel: (586) 293-6900
Fax: (586) 293-6903
Email: info@helicallap.com



Engis Korea Co., Ltd.

Gyeong Gi-Do, KOREA
Tel: 82-31-354-1426
Fax: 82-31-354-1430
Email: mkkim@engis.co.kr

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Hyprez® DiaMold® Toolroom Products

Comprehensive line of diamond polishing compounds, abrasive stones, sticks, bobs, brushes and files – plus powered hand finishing systems for every toolroom application.

Engis Single-Pass Bore Finishing Systems

Single-pass bore finishing systems-standard models and custom machines-plus diamond and CBN plated finishing tools, parts holders/fixtures and integrated automation systems.

Electrogrip® Grinding Systems

Advanced superabrasive grinding, cutting and dressing systems utilizing diamond and CBN materials. Specializing in the aerospace, medical, ceramic, automotive, and composite industries.



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105 W. Hintz Road • Wheeling, IL 60090-6038
Phone: 847/808-9400 • Toll Free: 1-800-99-ENGIS
FAX: 847/808-9430 • E-Mail: info@engis.com
Website: www.engis.com